ORDER NO. AD9111283C8

Service Manual

Portable CD Player
SL-XP505

COMPACT disc DIGITAL AUDIO

DIGITAL

Color

(K)...Black Type

Area

Country Code	Area	Color
(EB)	Great Britain.	(K)
(EG)	F.R. Germany & Italy.	
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	

SL-XP6 MECHANISM SERIES (S0DD100Z)

■ SPECIFICATIONS

■ Audio

No. of channels:	2 channels (stereo)
Frequency response:	20 − 20000 Hz (+0.5 dB, −1.5 dB)
Output voltage:	1.0 V (50 kΩ) mini jack φ3.5
Dynamic range:	more tahn 94 dB
S/N ratio:	more than 96 dB
Wow and flutter:	Below mesurable limit
Digital filter:	18 bit, 8 times oversampling
DA converter:	16 bit, 2 DAC
Headphone output level:	max. 15 mW/16Ω (adjustable) mini jack φ3.5

■ Signal Format

Correction system:	Technics New Super Decoding Algorithm

■ Pickup

Light source:	Semiconductor laser
Wavelenght:	780 nm
Lens:	Glass pressed lens

■ General

Power requirement:	AC; with an included AC adaptor (RFEA401B-W (EB), RFEA401E-1S (EG), RFEA402Z-W (GC), RFEA401A-W (GN)) Battery; with optional two "AA" size (LR6/R6) batteries (DC 1.5 V × 2) Rechargeable Battery; with an included rechargeable batteries (SH-CDB8-3: DC 1.2 V × 2)
DC IN:	4.5 V ⊖-C-⊕
Power consumption:	
AC adaptor;	3 W
Battery;	0.8 W (DC 3 V)
Dimensions (W × H × D):	128 × 29.7 × 148 mm (5″ × 1-1/8″ × 5-11/16″)
Weight:	345 g with batteries

■ Remote control transmitter

Dimensions (W × H × D):	65 × 19 × 77.5 mm
Weight:	60 g (including battery)
Battery:	UM-4, "AAA" (R03) 1.5 V × 2

■ Remote sensor

Dimensions (W × H × D):	31.3 × 15 × 29.3 mm (including plug) 16.3 × 15 × 29.3 mm (without plug)
Weight:	6.2 g

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

Technics

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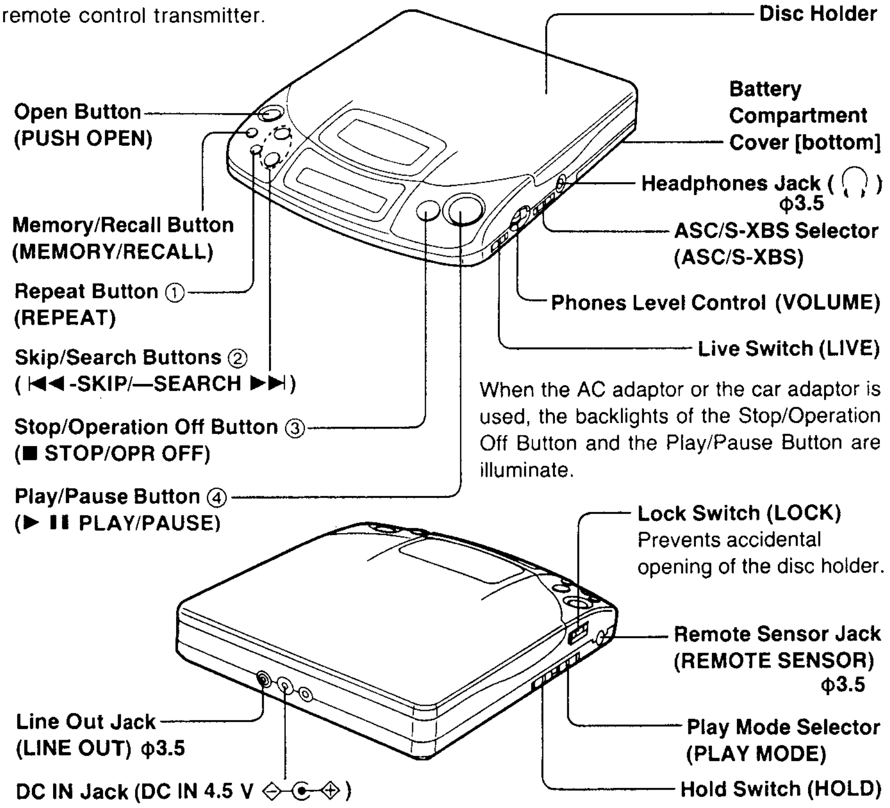
PANEL CONTROLS

Main unit

The functions indicated by the numbers (①–④) can also be activated using the remote control transmitter.

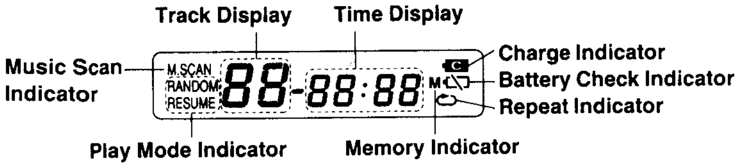

Disc Holder
Open Button (PUSH OPEN)
Battery Compartment Cover [bottom]
Headphones Jack (🎧) ϕ3.5
Memory/Recall Button (MEMORY/RECALL)
ASC/S-XBS Selector (ASC/S-XBS)
Repeat Button ① (REPEAT)
Phones Level Control (VOLUME)
Skip/Search Buttons ② (◀◀-SKIP/—SEARCH ▶▶)
Live Switch (LIVE)
Stop/Operation Off Button ③ (■ STOP/OPR OFF)
Play/Pause Button ④ (▶ ❚❚ PLAY/PAUSE)
Lock Switch (LOCK)
Remote Sensor Jack (REMOTE SENSOR) ϕ3.5
Line Out Jack (LINE OUT) ϕ3.5
Play Mode Selector (PLAY MODE)
DC IN Jack (DC IN 4.5 V ⊖-◐-⊕)
Hold Switch (HOLD)

When the AC adaptor or the car adaptor is used, the backlights of the Stop/Operation Off Button and the Play/Pause Button are illuminate.

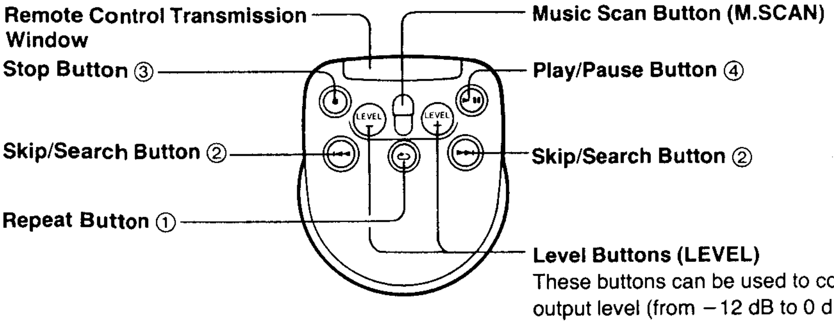
Lock Switch (LOCK): Prevents accidental opening of the disc holder.

Display

If this unit is used by AC adaptor or Car adaptor, the backlihgt of the display will be turned on.

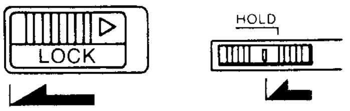

Track Display
Time Display
Music Scan Indicator
M.SCAN
RANDOM
RESUME
88-88:88
M
Charge Indicator
Battery Check Indicator
Repeat Indicator
Play Mode Indicator
Memory Indicator

Remote Control Transmitter


Remote Control Transmission Window
Music Scan Button (M.SCAN)
Stop Button ③
Play/Pause Button ④
LEVEL
LEVEL
Skip/Search Button ②
Skip/Search Button ②
Repeat Button ①
Level Buttons (LEVEL)

Level Buttons (LEVEL): These buttons can be used to control output level (from −12 dB to 0 dB).

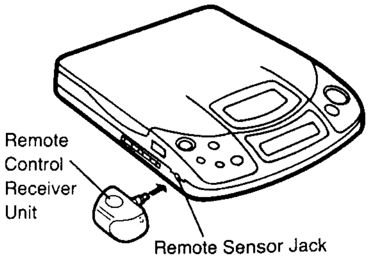
Note:
Before operating the front panel button, be sure to release the hold and the lock state.



Connect the included Remote Control Receiver Unit to Remote Sensor Jack.
The included Remote Control Transmitter is designed only for this unit.
Use the included AC Adaptor or optional car adaptor.

Notes:
- The remote control signal is non-directional when using the unit in the car.
- When using the unit with the batteries (dry cell or rechargeable), be sure to set the main unit to the stop mode (number of tracks and the total playing time are displayed) before operating from the remote control.

- **Preparation**


Remote Control Receiver Unit
Remote Sensor Jack

PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780nm
Maximum output radiation power from pick up: 100µW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780nm
Maximale strahlungsleistung der lasereinheit: 100µW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

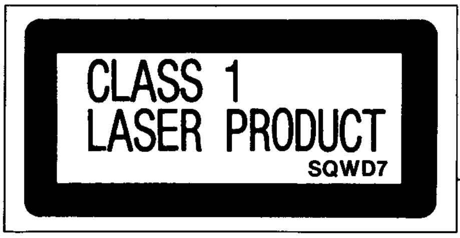
ADVARSEL: I dette a apparat anvendes laser.

• Use of caution labels

Note: ○ Mark is used, × Mark is not used.

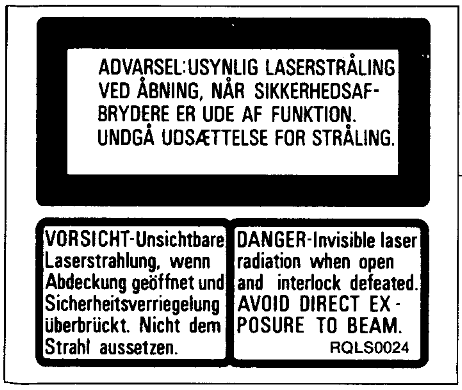
Areas	SQWD7	RQLS0024	RQLS0051
(E G)	○	○	○
Others	○	○	×

SQWD7



CLASS 1
LASER PRODUCT
SQWD7

RQLS0024

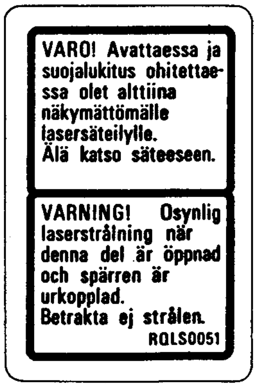


ADVARSEL:USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet und Sicherheitsverriegelung überbrückt. Nicht dem Strahl aussetzen.

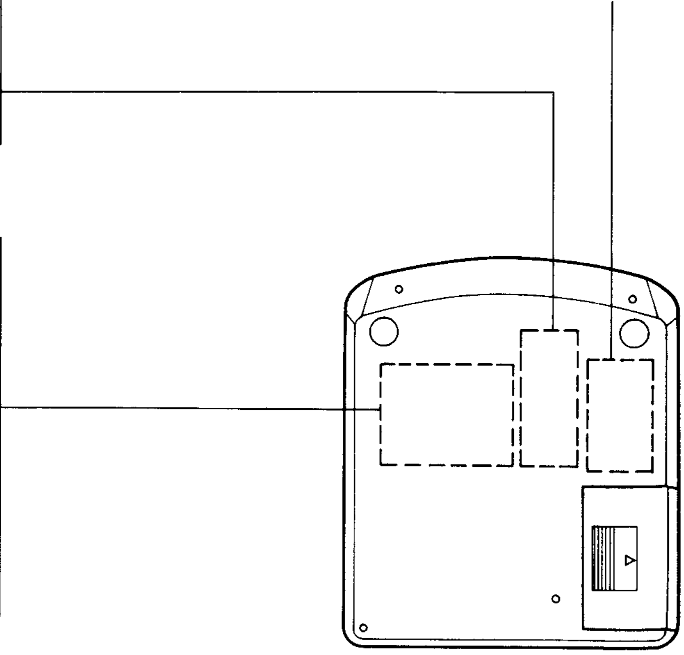
DANGER-Invisible laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.
RQLS0024

RQLS0051



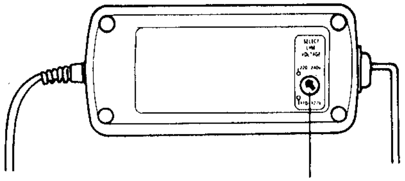
VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
RQLS0051



■ BEFORE USE

Make sure the AC Line-Voltage Selector of your AC adaptor is matched to your local voltage before plugging it into the AC socket. If the pre-selected voltage is different from your local voltage, turn the AC Line-Voltage Selector with a screwdriver so that it corresponds to your local voltage.

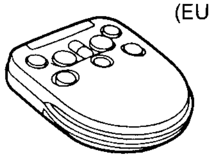


- If the AC power plug of this unit does not fit your ordinary household AC outlet, a plug adaptor should be used.
  If the plug adaptor does not fit your household AC outlet, consult with your dealer.

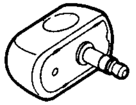
There is no voltage selector for some countries; the correct voltage is already set.

■ ACCESSORIES

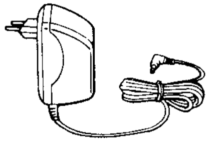
Remote Control Transmitter..... 1 pc.
(EURSBFA06NT)



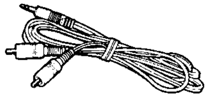
Remote Control Receiver Unit... 1 pc.
(RCDNTR1008A)



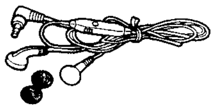
AC Adaptor..... 1 pc.
(RFEA401E-IS): (EG)
(RFEA401B-W): (EB)
(RFEA402Z-W): (GC)
(RFEA401A-W): (GN)



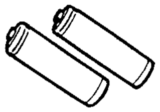
Stereo Connection Cable.................. 1 pc.
(SJPD5-2K)



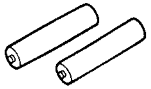
Stereo Earphones
(with remote controller)
(RFEV102A-K2S)



Rechargeable Batteries........ 2 pcs.
(SH-CDB8-3): (EG), (EB)
(SH-CDB8-2): (GC), (GN)



Batteries UM-4, "AAA" (R03)... 2 pcs.
(for Remote Control Transmitter)



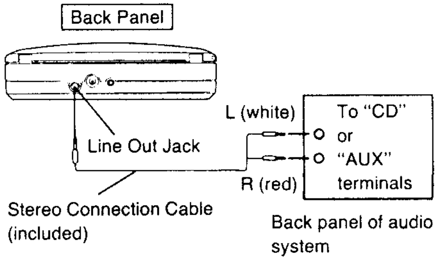
Note:
The configuration of the AC outlet and AC power supply cord differs according to the area.

■ CONNECTIONS

■ Listening through an audio system

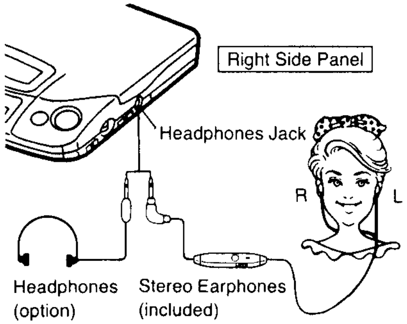
Use the Stereo Connection Cable (included) to connect this unit to a receiver or a stereo cassette recorder.

- Switch OFF the power to the receiver or stereo radio cassette recorder before connecting this unit.
- Do not connect this unit to the PHONO terminals of the receiver or stereo radio cassette recorder.


Back Panel
Line Out Jack
L (white)
R (red)
To "CD" or "AUX" terminals
Stereo Connection Cable (included)
Back panel of audio system

■ Listening through the stereo earphones or headphones

Connect the plug of the Stereo Earphones (included) or headphones (option) to the Headphones Jack.



Note for stereo earphones:
The right earphone cord is longer than the left and is adjustable for your convenience.

Precautions for Listening with the Headphones

- Do not play your headset at a high volume. Hearing experts advise against continuous extended play.
- If you experience a ringing in your ears, reduce volume or discontinue use.
- Do not use while operating a motorized vehicle. It may create a traffic hazard and is illegal in many areas.
- You should use extreme caution or temporarily discontinue use in potentially hazardous situations.
- Even if your headset is an open-air type designed to let you hear outside sounds, don't turn up the volume so high that you can't hear what's around you.

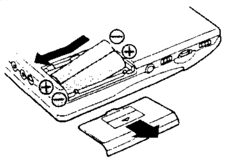
■ POWER SOURCE

This unit may be used with the included rechargeable batteries, the optional two LR6 type alkaline batteries, the included AC Adaptor or the optional Car Adaptor (SH-CDC9, optional).

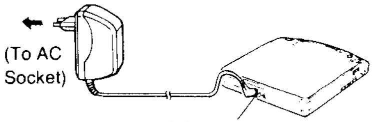
■ *Rechargeable batteries operation*

For its initial use after purchasing or after a long time interval (more than three months), make sure to recharge the rechargeable batteries. Normally 1 hour recharging will give approximately 1.5 hours and 3 hours recharging will give approximately 2.5 hours play.

1. Open the battery compartment cover and insert the rechargeable batteries into the battery compartment, making sure that the proper polarities are maintained.



2. Close the cover and connect the AC Adaptor as shown in the figure.
- The Charge Indicator will begin flashing. When the indicator lights, playing for approximately 1.5 hours can be operated. The indicator will turn off, when the charging is finished.



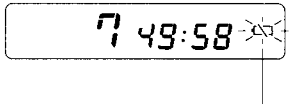
The shapes of the AC adaptor and plug may differ according to the area.

3. Disconnect the AC Adaptor.
- The unit can be turned on with the AC Adaptor while the battery is being recharged. In this case, the recharging time will be longer than the specified time.
- During playing, the Charge Indicator will not come up if the rechargeable batteries are inserted.

• Rechargeable battery life

This rechargeable battery can be recharged about 300 times. Over 300 times, its operation time will become shortened. That's time for replacing the rechargeable batteries with new ones (SH-CDB8-2, SH-CDB8-3).

- Battery condition can be checked by the Battery Check Indicator on the display. When the batteries are weak, the Battery Check Indicator begins to flash on and off, and then the unit will automatically shut off.



Battery Check Indicator

■ Optional LR6 type battery operation

Two LR6 type alkaline batteries can be inserted into the battery compartment in the same way as the rechargeable batteries.

- Battery condition can be also checked by the Battery Check Indicator. The indicator begins flashing on and off at a half consumption of the battery life.
  Use of alkaline batteries will give approximately 3.5 hours play.

Notes:
- Batteries installed with incorrect polarities may leak and damage this unit.
- Do not mix batteries (old and new) or types (Ni-Cd, alkaline and carbon).
- If the set is not used for a long period of time or is used only from an AC power source, remove all the batteries for battery life and to prevent potential damage due to possible battery leakage.

■ AC power operation

Use only the included AC Adaptor with this unit.

1. Insert the plug, at the end of the AC Adaptor cord, into the DC In Jack.
2. Plug the AC Adaptor into your household AC power outlet.

CAUTION:
Do not use the included AC Adaptor for other products.

Note:
To operate on battery power, unplug the AC Adaptor from the household AC Power Outlet and the DC In Jack on the unit.

■ Car battery operation

Follow the operating instructions of the optional Car Adaptor.

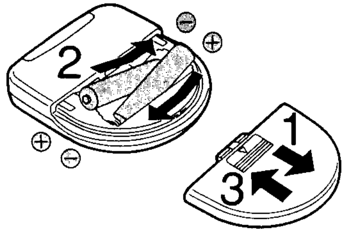
The rechargeable battery can be recharged with the Car Adaptor.
Please purchase the optional car mounting kit (SH-CDF7) and the car stereo cassette adaptor (SH-CDM7) before using this unit in a car.

CAUTION:
Use only car adaptor, Model: SH-CDC9, manufactured by Matsushita Electric Industrial Co., Ltd.

Notes:
- The batteries supplied with this unit are designed for Technics brand portable audio products only. Use in other products could cause damage or personal injury.
- Use only the included AC Adaptor or optional Car Adaptor when recharging.
- During recharging, the AC Adaptor and rechargeable batteries may get warm. This is normal.
- On its initial use after purchasing or its use after a long time interval, 3 hours recharging may not provide normal operation time.
  But the repeat of recharging will recover the normal operation time.
- Avoid recharging or placing the rechargeable battery near sources of heat or humidity. Recharging should be performed at 0°C~40°C (32°F~104°F).
- Do not attempt to recharge LR6/R6 type alkaline or carbon batteries.
- Do not use a rechargeable battery mixed with the other type (carbon or alkaline).
- Do not allow metal objects to touch the terminals. (A hazardous short circuit may result.)
- Do not incinerate the battery or bring it near a fire or open flame.
- If a battery leak should occur and the electrolyte comes into contact with skin or clothes, flush with water immediately.
  If the internal parts of the battery become visible because of damage to the battery, discard it immediately.

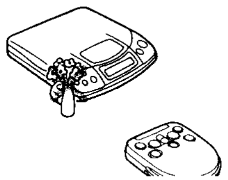
REMOTE CONTROL TRANSMITTER

Battery installation

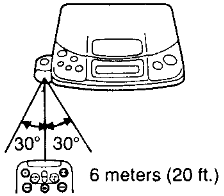


- Do not use rechargeable batteries (Ni-Cd type).
- Be sure the batteries are inserted so that the positive (+) and negative (−) polarities are correct. Batteries installed with incorrect polarities may leak and damage the remote control transmitter.
- Never subject the batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
- If the remote control transmitter is not to be used for a long time, remove the batteries and store them in a cool dark place.
- Remove old, weak or worn-out batteries promptly and dispose of them.
- Never mix old and new batteries, nor batteries of different types (carbon or alkaline).

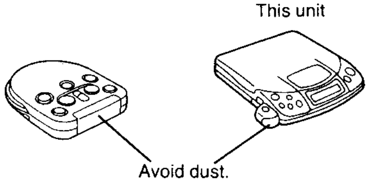
Operation notes



Aim the remote control transmission window toward the unit's sensor. Avoid any obstacles.


30°
30°
6 meters (20 ft.)

Use the remote control within a 60 degree angle and within 6 meters (20 ft.) from the unit.


This unit
Avoid dust.

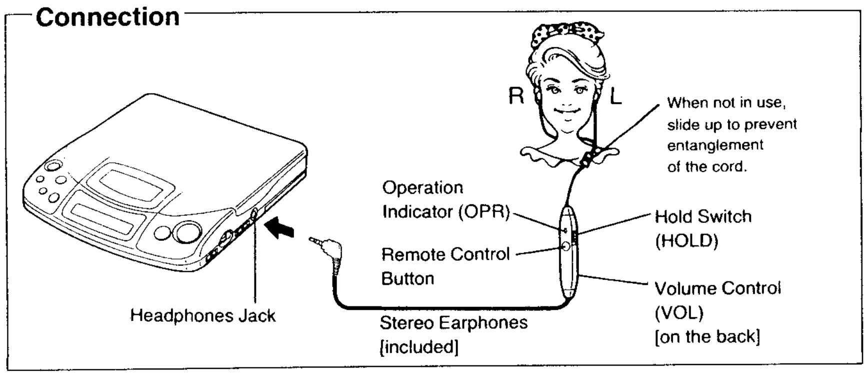
Be sure the transmission window and the unit's sensor are free from dust. Excessive dust might prevent reception.

The operation may not be correct if direct sunlight or other strong light sources strike the remote control signal sensor part of this unit. If there is a problem, place the unit away from the light source.

STEREO EARPHONES

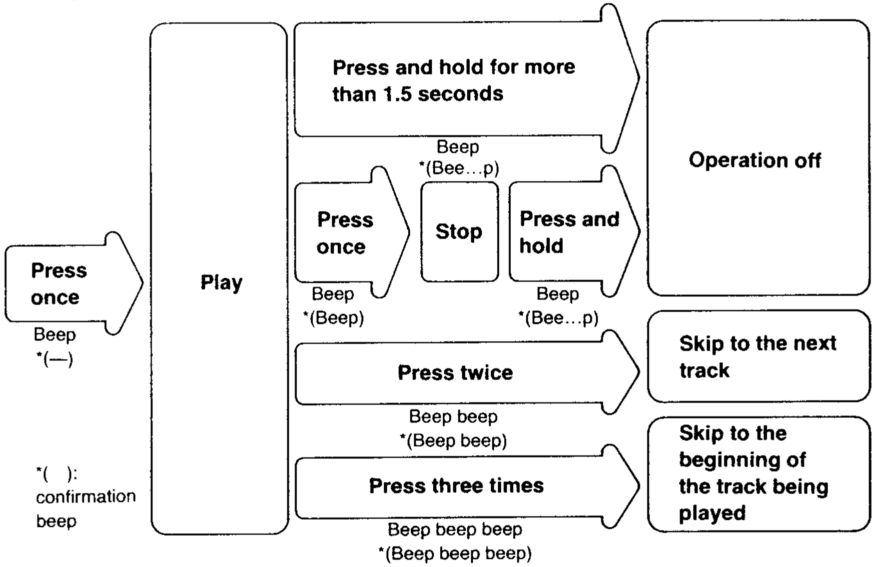
The following operation can be performed with the included Stereo Earphones, without pressing the operation buttons on the unit.

- play
- stop
- operation off
- skip
- volume control (phones level)


Connection
R
L
When not in use, slide up to prevent entanglement of the cord.
Operation Indicator (OPR)
Hold Switch (HOLD)
Remote Control Button
Volume Control (VOL) [on the back]
Headphones Jack
Stereo Earphones [included]

Operation

Before performing the remote control operation, be sure to release the hold state by sliding the Hold switch up.


Press once
Beep
*(—)
Play
Press and hold for more than 1.5 seconds
Beep
*(Bee...p)
Operation off
Press once
Beep
*(Beep)
Stop
Press and hold
Beep
*(Bee...p)
Press twice
Beep beep
*(Beep beep)
Skip to the next track
Press three times
Beep beep beep
*(Beep beep beep)
Skip to the beginning of the track being played
*( ): confirmation beep

- The beep will be emitted each time the Remote Control Button is pressed. Also, confirmation beeps will be emitted after pressed to confirm the proper operation.
- When pressing the button twice or three times in succession, press it within one second and at equal intervals.
- Volume can be controlled with the phones level control of the main unit. Make sure to adjust the phones level control of the unit to 5–7 position.
- The Operation Indicator lights during playing and flashes in the stop mode. (The indicator is turned off in a power off condition.)

Hold switch

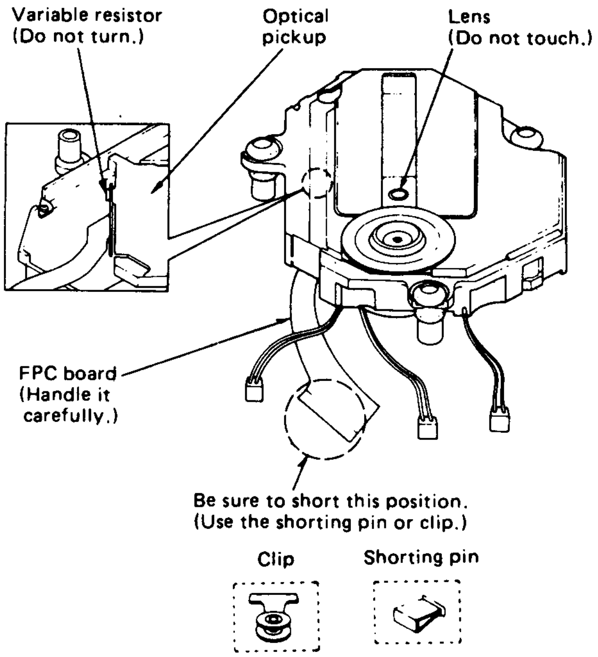
If setting the hold state by sliding down the Hold switch, the Remote control button can not be pressed. This prevents the Remote control button is pressed by mistake.

■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

• Handling of traverse deck (optical pickup)

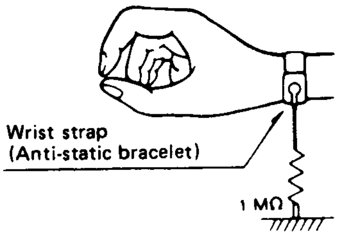
1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board).
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

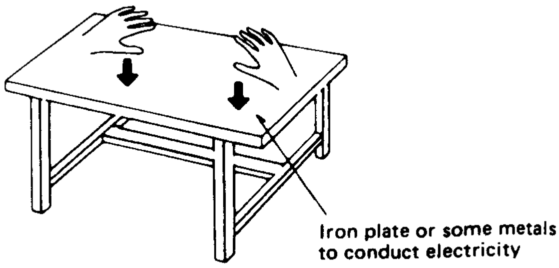

Variable resistor
(Do not turn.)
Optical pickup
Lens
(Do not touch.)
FPC board
(Handle it carefully.)
Be sure to short this position.
(Use the shorting pin or clip.)
Clip
Shorting pin

• Grounding for electrostatic breakdown prevention

1. Human body grounding.
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).


Wrist strap
(Anti-static bracelet)
1 MΩ


Iron plate or some metals to conduct electricity

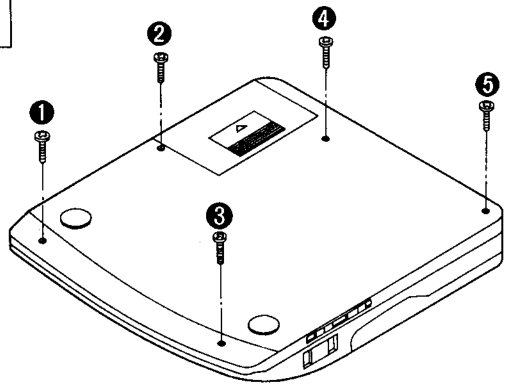
DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diode. Refer to caution statements on page 3.

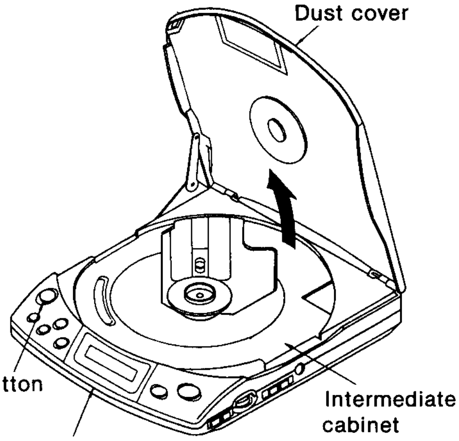
ACHTUNG:
- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

※This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.

Ref. No. 1	**Removal of the intermediate cabinet**
Procedure 1	



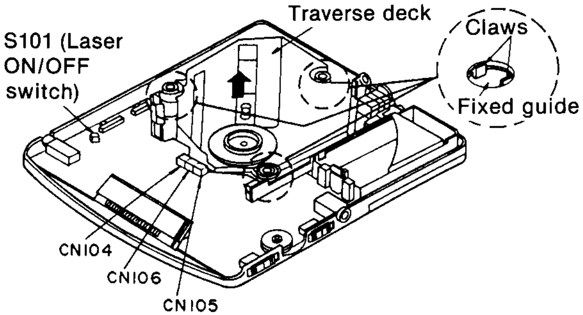
1. Remove the 5 screws (❶~❺).


Dust cover
Open button
Intermediate cabinet

※Take care not to break a claw.

2. Push the open button and open the dust cover.
3. Remove the intermediate cabinet in the direction of arrow.

Ref. No. 2	**Removal of the traverse deck**
Procedure 1→2	

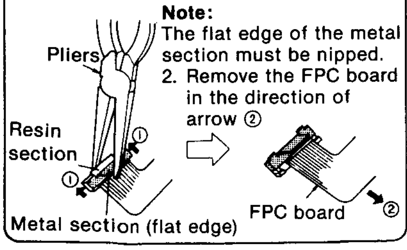

S101 (Laser ON/OFF switch)
Traverse deck
Claws
Fixed guide
CN104
CN106
CN105

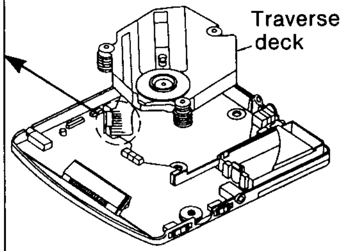
1. Disconnect the connectors (CN104, CN105, CN106).
2. Remove the claws of fixed guide from bottom side.
3. Pull out the traverse deck in the direction of arrow.

How to remove the FPC board.
1. Nip the metal and resin sections of the connector with a pair of pliers and then move the metal section in the direction of arrows ①.

Note:
The flat edge of the metal section must be nipped.

2. Remove the FPC board in the direction of arrow ②

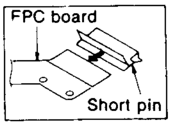

Pliers
Resin section
①
①
Metal section (flat edge)
FPC board
②


Traverse deck

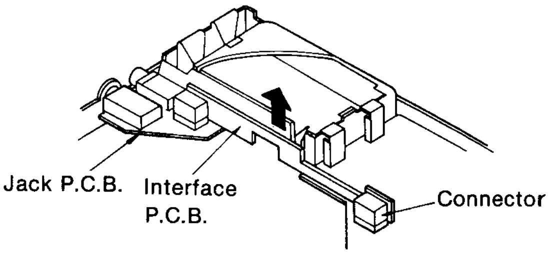
4. Remove the FPC board (CN103).

Caution:

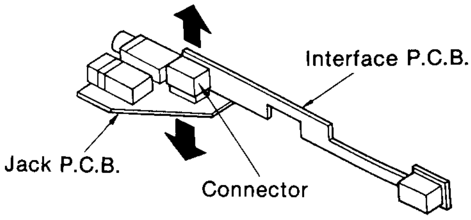
Insert a short pin into the traverse deck's FPC board. (Refer to "handling precautions for traverse deck" on page 5.)


FPC board
Short pin

Ref. No. 3	**Removal of the interface P.C.B. and jack P.C.B.**
Procedure 1→2→3	


Jack P.C.B.
Interface P.C.B.
Connector

1. Remove the interface P.C.B. in the direction of arrow with carefully.

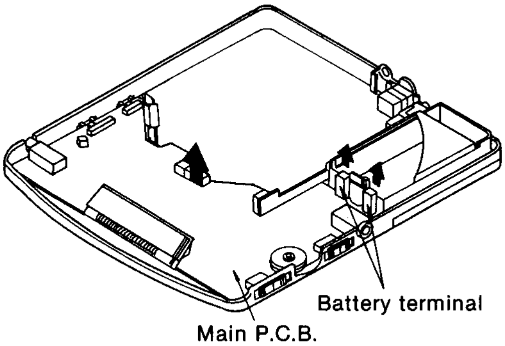

Interface P.C.B.
Jack P.C.B.
Connector

2. Separate the interface P.C.B. and jack P.C.B. in the direction of arrow.

Ref. No.
4

Removal of the main P.C.B.

Procedure
1→2→3→4


Battery terminal
Main P.C.B.

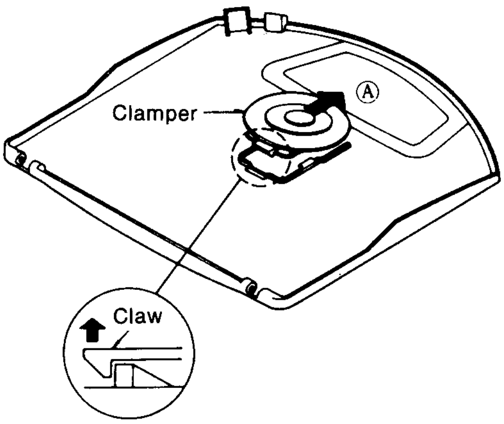
- Remove the main P.C.B. and battery terminal.

Ref. No.
6

Removal of the clamper

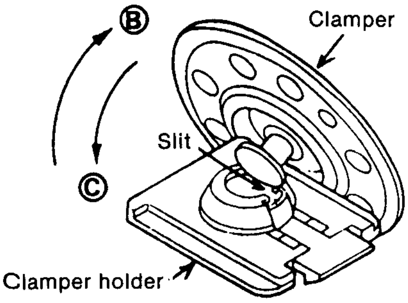
Procedure
1→5→6

1. Remove the claw.
2. Remove the clamper in the direction of arrow Ⓐ.


Clamper
Ⓐ
Claw

3. Put together clamper and clamper holder in the direction of slit.
4. Remove the clamper from clamper holder in the direction of arrow Ⓑ.

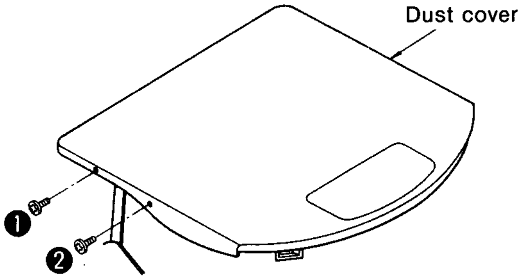
Note: When attach the clamper, insert it in the direction of arrow Ⓒ.


Ⓑ
Ⓒ
Clamper
Slit
Clamper holder

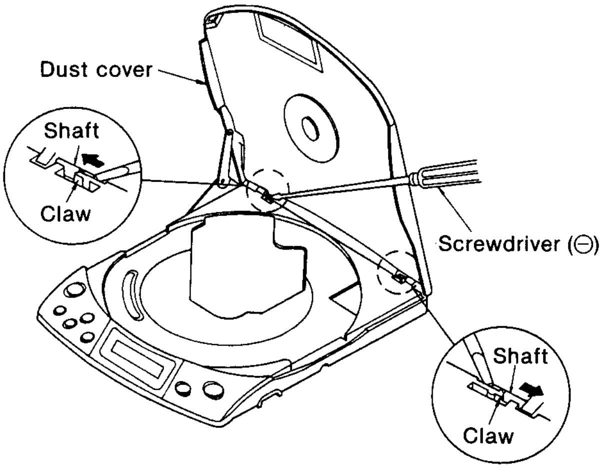
Ref. No.
5

Removal of the dust cover

Procedure
1→5


Dust cover
❶
❷

1. Remove the 2 screws (❶, ❷).

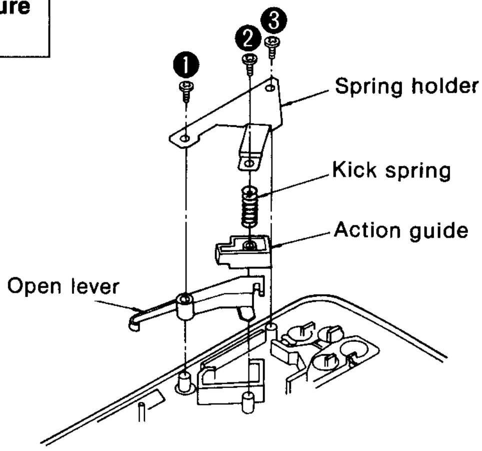

Dust cover
Shaft
Claw
Screwdriver (⊖)
Shaft
Claw

2. Use a screwdriver (⊖) or similar tool to push the shafts in the direction of arrow and remove it.

Ref. No.
7

Removal of the kick spring, action guide and open lever

Procedure
1→7

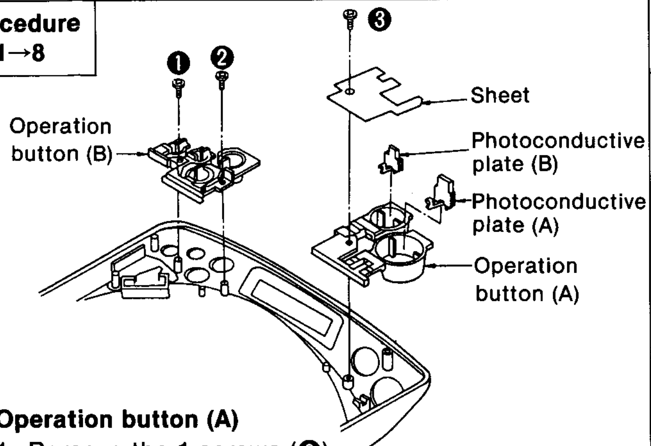

❶
❷
❸
Spring holder
Kick spring
Action guide
Open lever

1. Remove the 3 screws (❶~❸).
2. Remove the spring holder.
3. Remove the kick spring, action guide and open lever.

Ref. No. 8

Removal of the operation button (A), (B)

Procedure 1→8


❸
❶ ❷
Sheet
Operation button (B)
Photoconductive plate (B)
Photoconductive plate (A)
Operation button (A)

■ **Operation button (A)**

1. Remove the 1 screws (❸).
2. Remove the sheet and photoconductive plate (A), (B).

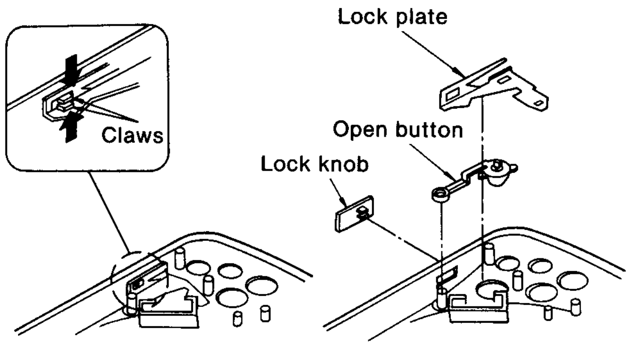
■ **Operation button (B)**

- Remove the 2 sctews (❶, ❷).

Ref. No. 9

Remove the lock knob and open button

Procedure 1→8→9

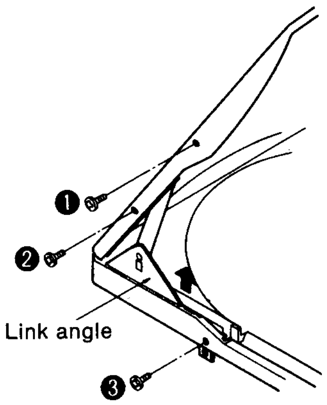

Claws
Lock plate
Open button
Lock knob

1. Push the claw in the direction of arrows, and remove the lock knob.
2. Remove the lock plate and open button.

Ref. No. 10

Removal of the link angle

Procedure 1→10

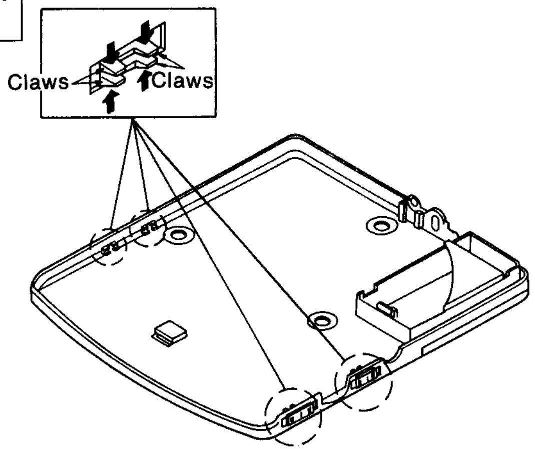

❶
❷
Link angle
❸

1. Remove the 3 screws (❶~❸).
2. Remove the link angle in the direction of arrow.

Ref. No. 11

Removal of the slide switch knobs

Procedure 1→2→3→4 →11


Claws
Claws

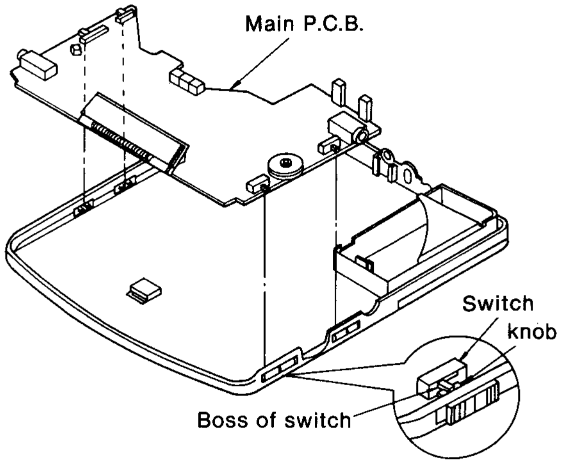
- Push the claws in the direction of arrows, and remove the slide switch knobs.

■ NOTE FOR ASSEMBLY

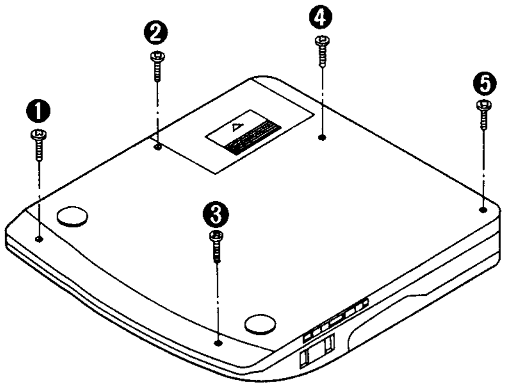
• How to install the main P.C.B.

Make sure the bosses of the switch are fit in the claws of switch control when inserting the switch control.

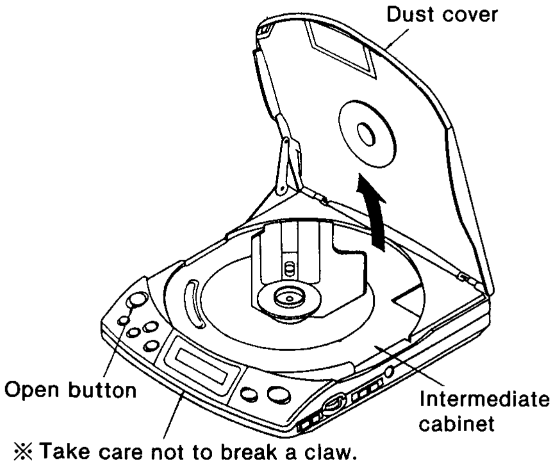
* Before installing the switch control, be sure to check the claws for defects that would render the claws unserviceable. (If a white line like white wax on a claw is found, the claw may be broken when installing the switch control.)


Main P.C.B.
Switch knob
Boss of switch

HOW TO CHECK THE MAIN P.C.B.

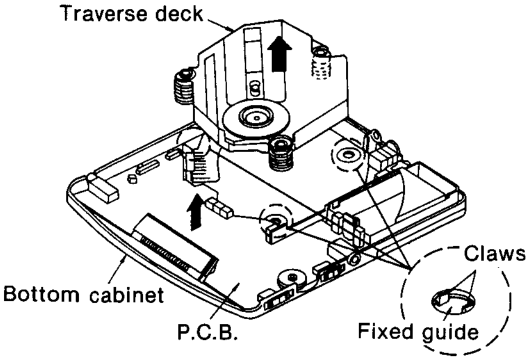


1. Remove the 5 screws (❶~❺).


Dust cover
Open button
Intermediate cabinet

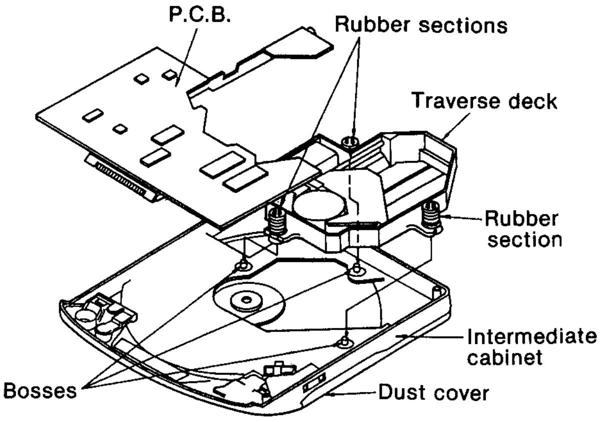
※ Take care not to break a claw.

2. Push the open button and open the dust cover.
3. Remove the intermediate cabinet in the direction of arrow.


Traverse deck
Claws
Bottom cabinet
P.C.B.
Fixed guide

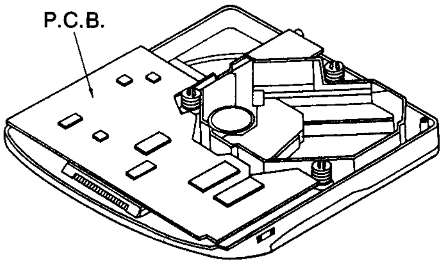
4. Remove the claw of fixed guide, and then remove the traverse deck.
5. Remove the P.C.B. from the bottom cabinet.
6. Short-circuit the lands of the laser ON/OFF SW (S101) by soldering them (See page 16)

   Note: After checking the P.C.B., remove the solders from the lands.


P.C.B.
Rubber sections
Traverse deck
Rubber section
Intermediate cabinet
Bosses
Dust cover

7. Install the traverse deck and P.C.B. in the intermediate cabinet.
8. Install the unit in place by holding the traverse deck and P.C.B. firmly, and then install the disc.

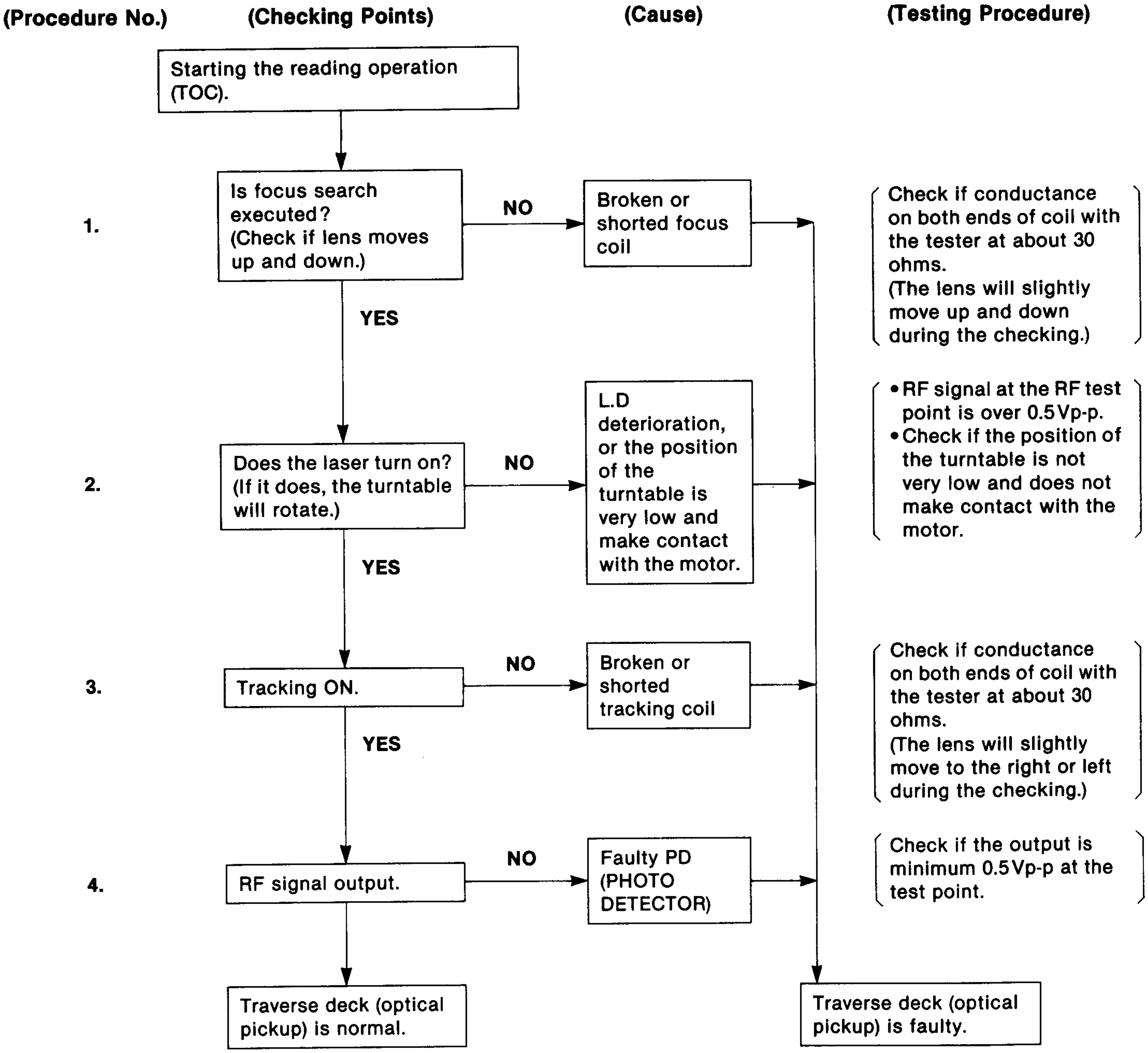
   Note: Engage the rubber sections of the traverse deck in the bosses on the intermediate cabinet.



9. With the P.C.B. in place as shown in the figure above, connect the AC adapter to the DC IN jack, press the play button and then check the voltage and waveform.

■CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.


(Procedure No.)
(Checking Points)
(Cause)
(Testing Procedure)
Starting the reading operation (TOC).
1.
Is focus search executed? (Check if lens moves up and down.)
NO
Broken or shorted focus coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move up and down during the checking.)
YES
2.
Does the laser turn on? (If it does, the turntable will rotate.)
NO
L.D deterioration, or the position of the turntable is very low and make contact with the motor.
• RF signal at the RF test point is over 0.5Vp-p.
• Check if the position of the turntable is not very low and does not make contact with the motor.
YES
3.
Tracking ON.
NO
Broken or shorted tracking coil
Check if conductance on both ends of coil with the tester at about 30 ohms. (The lens will slightly move to the right or left during the checking.)
YES
4.
RF signal output.
NO
Faulty PD (PHOTO DETECTOR)
Check if the output is minimum 0.5Vp-p at the test point.
Traverse deck (optical pickup) is normal.
Traverse deck (optical pickup) is faulty.

※ Replace traverse deck.

- Check electrical circuit.
- CD is not adjusted properly. Adjust CD again.
  - (1) Mechanical adjustment.
  - (2) Power supply voltage adjustment.
  - (3) Best eye adjustment (PD balance).
  - (4) Focus gain adjustment.
  - (5) Tracking gain adjustment.
  - (6) Focus offset adjustment.
  - (7) Tracking offset adjustment.
  - (8) Tracking balance adjustment.

  } Refer to pp. 17~19
- Check for flaws on disc or if it is warped or not centered.

※ Checking Operations of Replaced Traverse Deck (New Traverse Deck)

a) Check the operations described below on the traverse deck after replacing it.

* Checking Skip Search
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* Checking Manual Search
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* Checking Using Defect Disc
1. Play the 0.7mm black dot and the 0.7mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

b) If the operations are normal, CD adjustments are not required when the traverse deck is replaced.

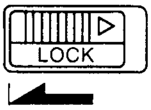
Note: CD adjustments are required in the cases below. (Mechanical adjustments are not necessary.) (See item 2-9 on pp. 17~19.)
- If audio is not played back continuously or noises occur after step (a) is executed.
- If the adjustment VRs (VR101~VR106) were rotated before the traverse deck was replaced.
- If the ICs in the servo circuit or adjustment VRs (VR101~VR106) were replaced.

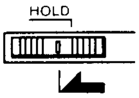
■ NOTE FOR SERVICE

• About hold switch

Before checking the operation problems and adjustments, be sure to release the hold and the lock state.

Note:
Before operating the front panel button, be sure to release the hold and the lock state.

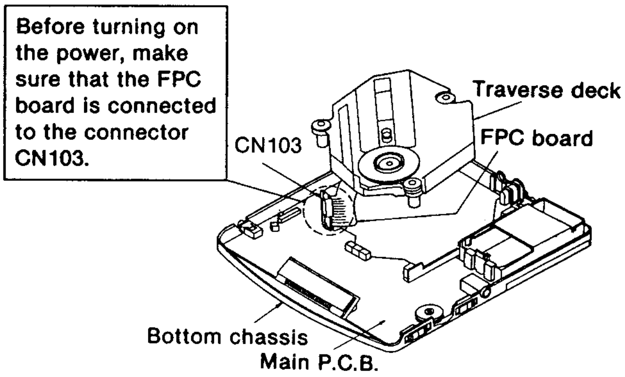




• Connection of the FPC board of the optical pickup

Before you put the power supply to work from the AC adaptor or batteries to check the set's operations and voltage, be sure to connect the FPC board of the optical pickup to the connector CN103 on the main P.C.B. If you disconnected the FPC board from the connector CN103, the transistor Q12 may be damaged when the PLAY/PAUSE button is pressed with the FPC board disconnected.

The note described above does not apply in the case that the FPC board is connected to the connector CN103 during service.


Before turning on the power, make sure that the FPC board is connected to the connector CN103.

MEASUREMENTS AND ADJUSTMENTS

Warning: This product uses a laser diode. Refer to caution statements on page 3.

Caution: During adjustment, never connect CH-2 probe's GND to any place for it may short Vref line. (Connect CH-1 probe's GND to specified TP. described in each section.)

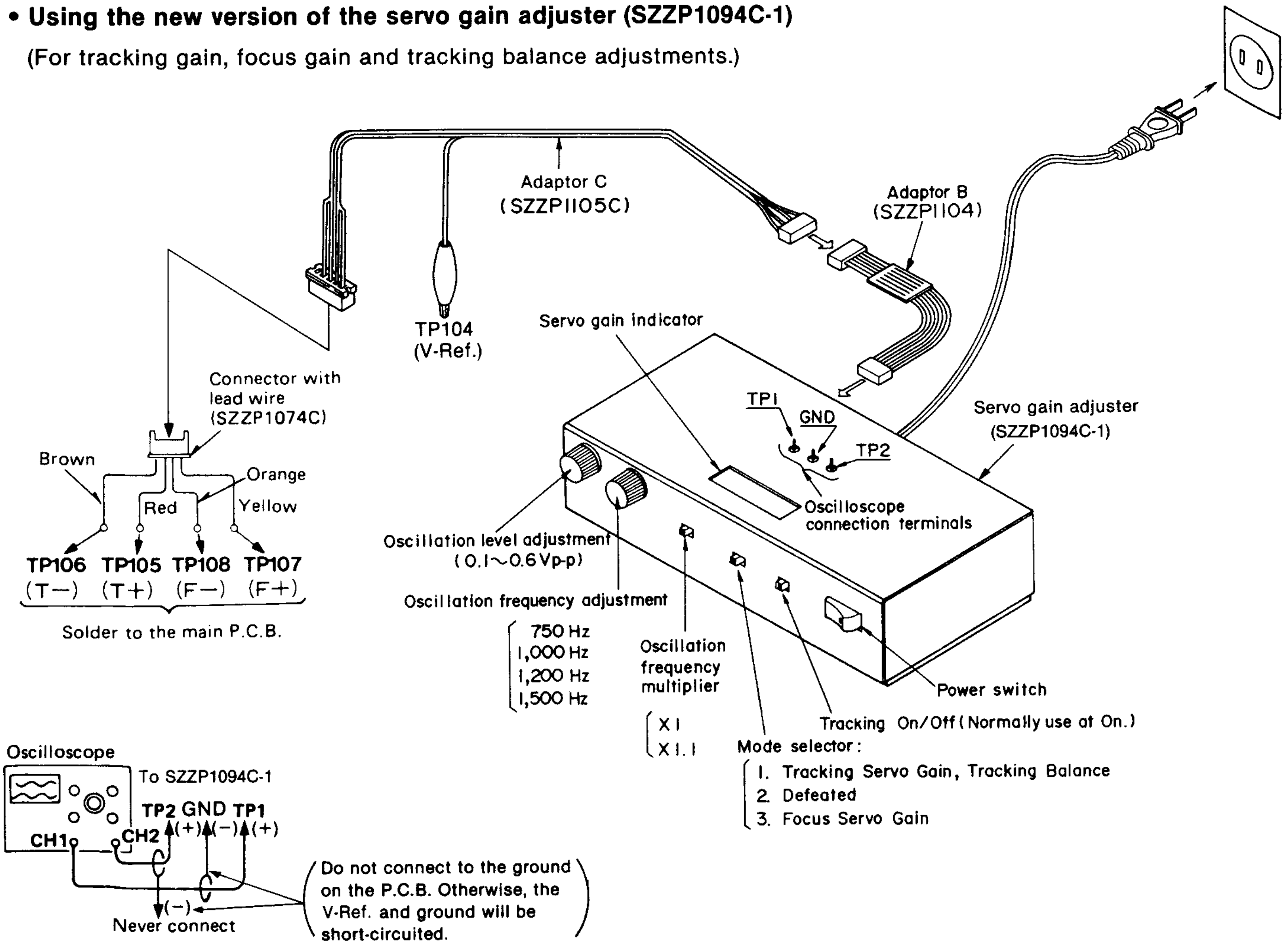
Measuring Instruments and Special Tools

- ＊ Servo gain adjuster (SZZP1017F or SZZP1094C-1)
- ＊ Test discs
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
  3. Black band test disc (SZZP1057C)
- ＊ Musical program disc (ordinary)
- ＊ Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT. trigger and 1:1 probe).
- ＊ Lead wire (for test points)
- ＊ Allen wrench (M2.0) (SZZP1101C)
- ＊ Connector with lead wire (SZZP1074C)
- ＊ DC voltmeter
- ＊ Disc clamper (RXQ0218)
- • New version of the servo gain adjuster
  - ＊ Adaptor C (SZZP1105C)
  - ＊ Adaptor B (SZZP1104)
- • Former version of the servo gain adjuster
  - ＊ Conversion connector (SZZP1032F)
  - ＊ Audio-frequency oscillator

• PREPARATION FOR SERVO GAIN ADJUSTER

• Using the new version of the servo gain adjuster (SZZP1094C-1)

(For tracking gain, focus gain and tracking balance adjustments.)



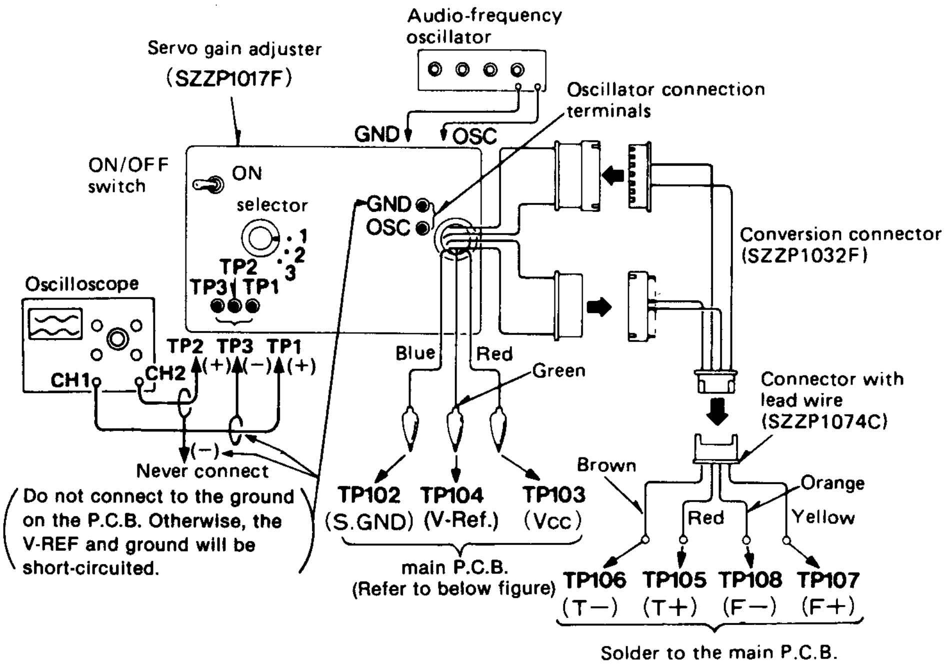
Adaptor C
(SZZP1105C)
Adaptor B
(SZZP1104)
TP104
(V-Ref.)
Servo gain indicator
Connector with
lead wire
(SZZP1074C)
TP1
GND
TP2
Servo gain adjuster
(SZZP1094C-1)
Brown
Orange
Red
Yellow
Oscilloscope
connection terminals
TP106 TP105 TP108 TP107
(T−) (T+) (F−) (F+)
Solder to the main P.C.B.
Oscillation level adjustment
(0.1~0.6Vp-p)
Oscillation frequency adjustment
750 Hz
1,000 Hz
1,200 Hz
1,500 Hz
Oscillation
frequency
multiplier
X1
X1.1
Power switch
Tracking On/Off (Normally use at On.)
Mode selector:
1. Tracking Servo Gain, Tracking Balance
2. Defeated
3. Focus Servo Gain
Oscilloscope
To SZZP1094C-1
TP2 GND TP1
(+) (−) (+)
CH1
CH2
(−)
Never connect

Do not connect to the ground on the P.C.B. Otherwise, the V-Ref. and ground will be short-circuited.

Note: Refer to Notes in focus and tracking gain adjustment on page 18.

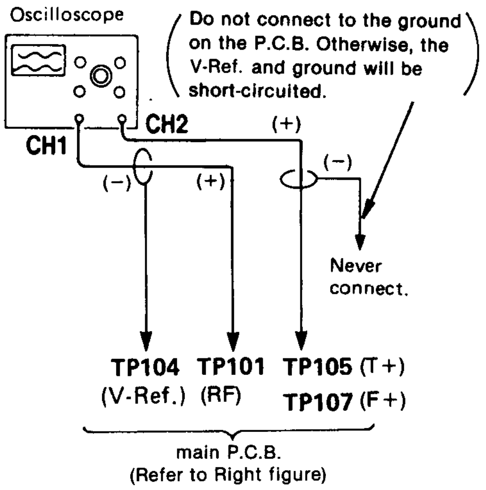
• Using the former version of the servo gain adjuster (SZZP1017F)

(For tracking gain, focus gain and tracking balance adjustments.)

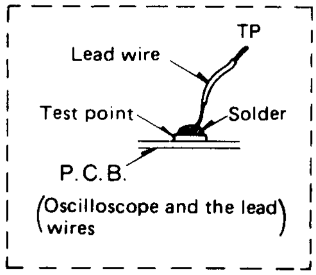

Audio-frequency oscillator
Servo gain adjuster (SZZP1017F)
Oscillator connection terminals
GND
OSC
ON/OFF switch
ON
selector
1
2
3
TP2
TP3
TP1
GND
OSC
Conversion connector (SZZP1032F)
Oscilloscope
TP2 TP3 TP1
(+) (−) (+)
CH1
CH2
Blue
Red
Green
Connector with lead wire (SZZP1074C)
(−)
Never connect
Brown
Orange
Red
Yellow
Do not connect to the ground on the P.C.B. Otherwise, the V-REF and ground will be short-circuited.
TP102 (S.GND)
TP104 (V-Ref.)
TP103 (Vcc)
main P.C.B. (Refer to below figure)
TP106 (T−)
TP105 (T+)
TP108 (F−)
TP107 (F+)
Solder to the main P.C.B.

• Connection of oscilloscope

(For best eye, focus offset, tracking offset, tracking balance and mechanical adjustments.)


Oscilloscope
Do not connect to the ground on the P.C.B. Otherwise, the V-Ref. and ground will be short-circuited.
CH1
CH2
(+)
(−)
(−)
(+)
Never connect.
TP104 (V-Ref.)
TP101 (RF)
TP105 (T+)
TP107 (F+)
main P.C.B.
(Refer to Right figure)

Solder the lead wires to the main P.C.B.
(TP101, 102, 103, 104, 105, 106, 107, 108)

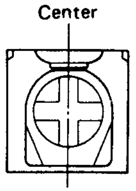

TP
Lead wire
Test point
Solder
P.C.B.
(Oscilloscope and the lead wires)

• Precaution for adjustments

1. Remove the intermediate cabinet. (Refer to page 8.)
2. Solder the lead wires and connector with lead wire (SZZP1074C) to the test points on the main P.C.B.
3. Confirm the mechanical center.
   In the focus gain adjustment, if **VR104** is turned too far, the rotation of the turntable will stop. Turn a little at a time to the right or left from the mechanical center, and then switch on the power. After finding the position at which rotation starts, repeat the adjustment.
   - If any of the adjustments is substantially out of adjustment, reset the electrical adjustment VRs back to the mechanical center and readjust.

• Temporary setting of each VR

Temporary VR setting if any of the electrical adjustment VRs are replaced or require re-adjustment, temporarily set them to the following positions:



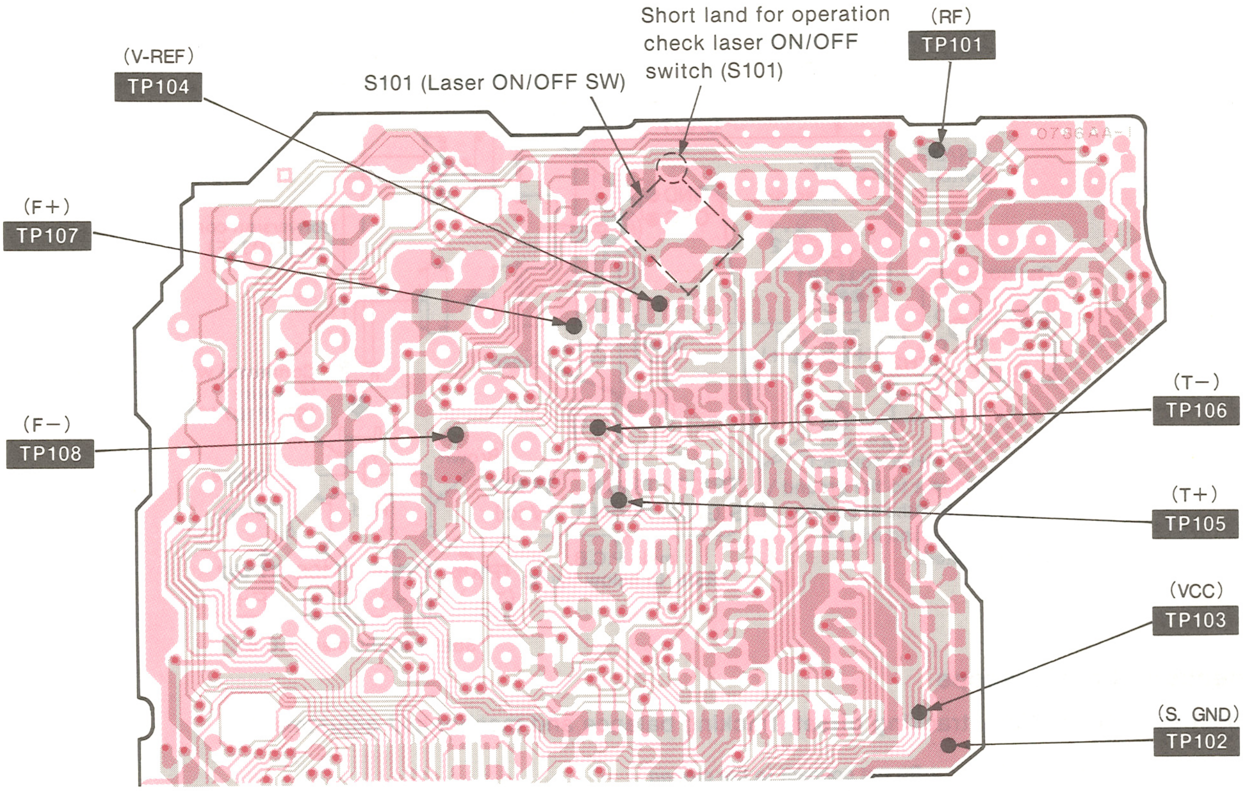
Electrical adjustment VRs

• Test short land

Short-circuit the lands of the laser ON/OFF switch (S101) by soldering them. It turns "ON" position. Refer to the upper figure on page 16.

Note: Remove the solders from the lands after adjustment.

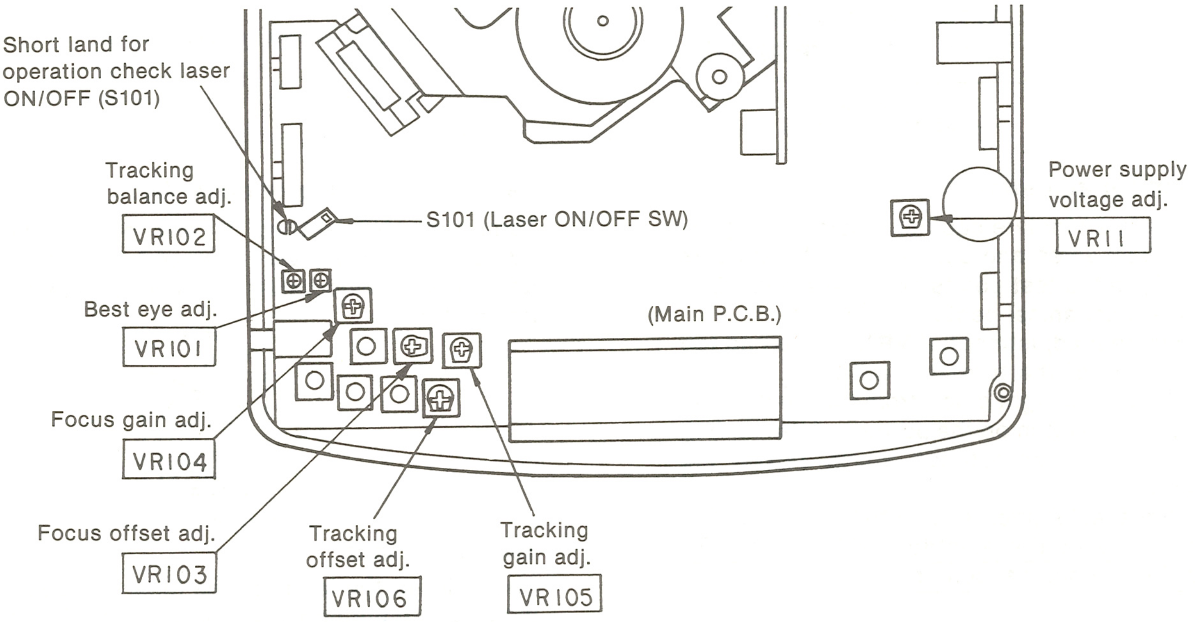
• Test points and adjustment points


(V-REF)
TP104
S101 (Laser ON/OFF SW)
Short land for operation check laser ON/OFF switch (S101)
(RF)
TP101
(F+)
TP107
(F−)
TP108
(T−)
TP106
(T+)
TP105
(VCC)
TP103
(S. GND)
TP102

Notes:

This diagram shows a front view of the LCD mounting surface.

1. The circuit shown in (●—●) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in (●—●) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

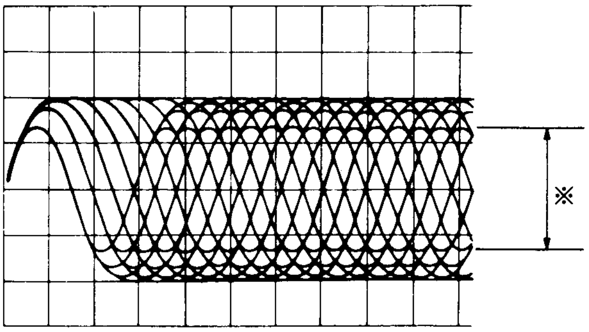

Short land for operation check laser ON/OFF (S101)
Tracking balance adj.
VR102
S101 (Laser ON/OFF SW)
Power supply voltage adj.
VR11
Best eye adj.
VR101
(Main P.C.B.)
Focus gain adj.
VR104
Focus offset adj.
VR103
Tracking offset adj.
VR106
Tracking gain adj.
VR105

• Adjustment procedure

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability if the traverse deck has not been replaced.

1. Connect the oscilloscope's CH. 1 probe across **TP101** (RF) (+) and **TP104** (V-Ref.) (−) on the main P.C.B.
   Oscilloscope setting: VOLT . . . . .100 mV
   SWEEP . . . . . . .0.5μsec.
   Input coupling . . AC
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1056C).
3. Leave the player in play mode, and place it as shown right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZ0L01).



※ Most stretched eye pattern.

Note : When adjusting the traverse deck, hold it as shown in the figures.
Adjust it in either of the ways shown in Figure (A) or (B).

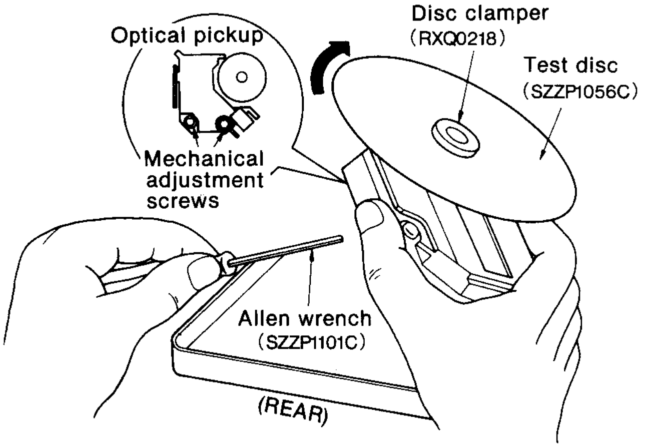

Optical pickup
Disc clamper
(RXQ0218)
Test disc
(SZZP1056C)
Mechanical
adjustment
screws
Allen wrench
(SZZP1101C)
(REAR)

Figure (A)

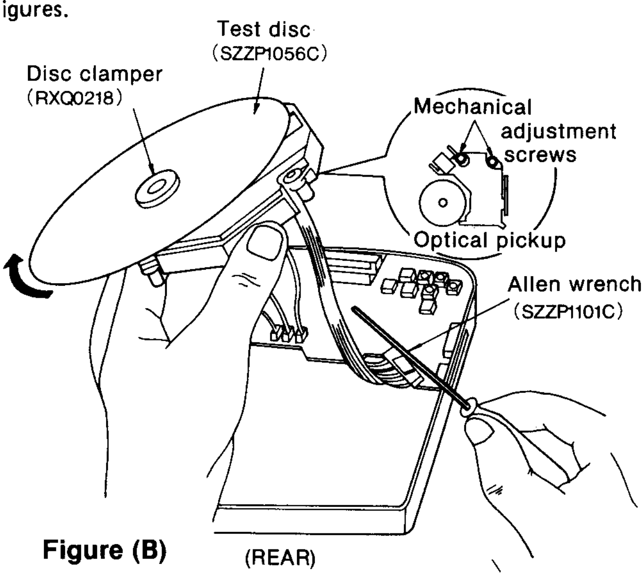

Test disc
(SZZP1056C)
Disc clamper
(RXQ0218)
Mechanical
adjustment
screws
Optical pickup
Allen wrench
(SZZP1101C)
(REAR)

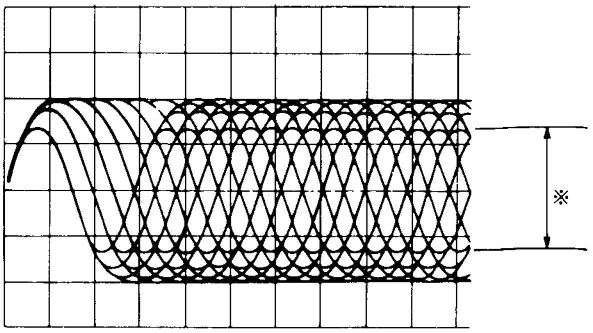
Figure (B)

(2) POWER SUPPLY VOLTAGE ADJUSTMENT

1. Connect the DC voltmeter to **TP103** (VCC) and **TP102** (S. GND).
2. Insert the test disc, and switch the player power ON.
3. Adjust **VR11** on the main P.C.B. at **4.6±0.05V.**

(3) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TP101** (RF) (+) and **TP104** (V-Ref.) (−) on the main P.C.B.
   Oscilloscope setting: VOLT . . . . .100 mV
   SWEEP . . . . . . .0.5μsec.
   Input coupling . . AC
2. Switch the player power **ON**, and play the 1 kHz (track 1) on the test disc (SZZP1054C).
3. Adjust **VR101** until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.



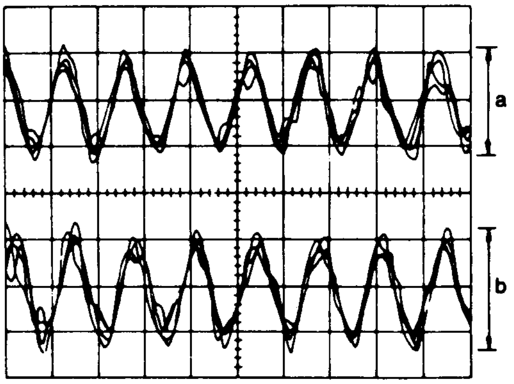
※ Most stretched eye pattern.

(4) FOCUS GAIN ADJUSTMENT

1. Set the "FREQUENCY" dial of the servo gain adjuster's to "750" the "RANGE" slector to "×1.1" and the "OSC LEVEL" control to "0.2" (825Hz, 200mVp-p).
2. Set the "MODE SELECTOR" to position "2," and the "TRACKING ON/OFF" switch to "ON."
3. Play track 1 (1kHz) on the test disc (SZZP1054C).
4. Change the "MODE SELECTOR" switch setting from position "2" to "3."
5. Adjust **VR104** until the green "SERVO GAIN" indicator LED comes on to indicate "**GOOD.**"
6. Set the "MODE SELECTOR" switch from position "3" back to "2."

   Note: With the new version of the servo gain adjuster, connect TP1, TP2, and TP3 (GND) to an oscilloscope, and you will be able to perform all adjustments while monitoring the waveforms on the oscilloscope screen. Adjust **VR104** until the signal amplitude on one channel becomes identical to that on the other, as shown at right. This adjustment procedure also applies with an oscilloscope and audio-frequency oscillator to the former version of the servo gain adjuster.

Oscilloscope setting: VOLT..................100mV (both channels)
SWEEP...............1msec.
Input coupling...AC

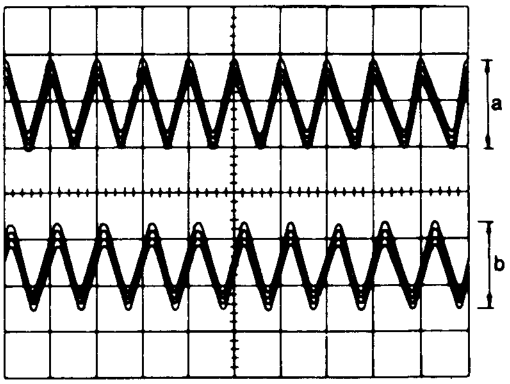


※ Adjust **VR104** until a equals b.

(5) TRACKING GAIN ADJUSTMENT

1. Set the "FREQUENCY" dial of the servo gain adjuster's to "1,000" the "RANGE" selector to "×1.1" and the "OSC LEVEL" control to "0.2" (1.1kHz, 200mVp-p).
2. Play track 1 (1kHz) on the test disc (SZZP1054C).
3. Set the "MODE SELECTOR" switch from position "2" to "1."
4. Adjust **VR105** until the green "SERVO GAIN" indicator LED comes on to indicate "**GOOD.**"
5. Set the "MODE SELECTOR" switch from position "1" back to "2."

   Note: When using an oscilloscope for this adjustment, follow the procedure given in the "Note" in (4), "Adjusting Focus Gain" above.



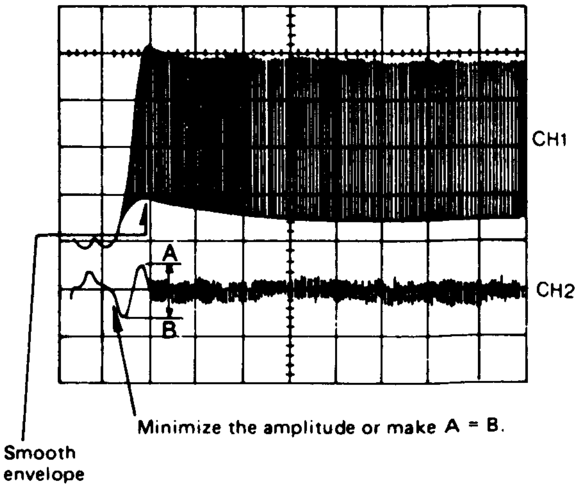
※ Adjust **VR102** until a equals b.

(6) FOCUS OFFSET ADJUSTMENT

Note: Set the "**MODE SELECTOR**" switch of the Servo Gain Adjuster to position "2."

1. Connect the oscilloscope's CH. 1 probe across TP101 (RF)(+) and TP104 (V-Ref.)(−) on the main P.C.B. and its CH. 2 probe (+) to TP107 (F+).

   Oscilloscope setting: VOLT..........100mV (CH. 1)
   500mV (CH. 2)
   SWEEP.........0.2msec.
   Input coupling...AC (both CH. 1 and 2)
   Trigger mode....NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR103** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.



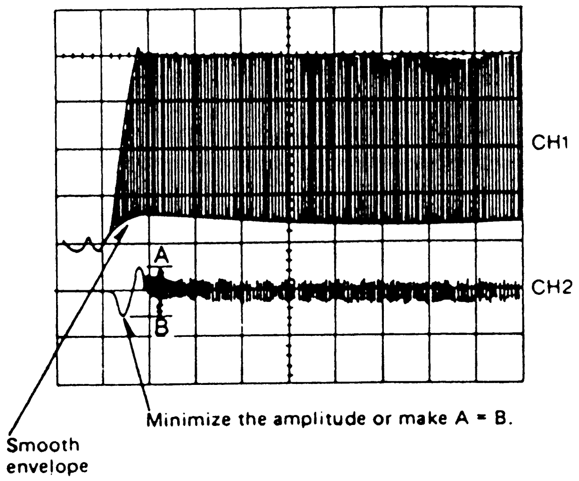
Minimize the amplitude or make A = B.

Smooth envelope

(7) TRACKING OFFSET ADJUSTMENT

Note: Set the "**MODE SELECTOR**" switch of the Servo Gain Adjuster to position "2."

1. Connect the oscilloscope's CH. 1 probe across **TP101** (RF) (+) and **TP104** (V-Ref.) (−) on the main P.C.B. and its CH. 2 probe (+) to **TP105** (T+).
   Oscilloscope setting: VOLT.......... 100mV (CH. 1)
   200mV (CH. 2)
   SWEEP........0.5msec.
   Input coupling. . AC (both CH. 1 and 2)
   Trigger mode. . . NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR106** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.

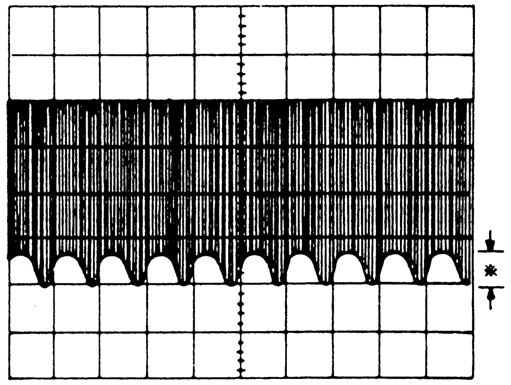


(8) TRACKING BALANCE ADJUSTMENT

1. Set the "FREQUENCY" dial of the servo gain adjuster's to "**1,000**" th "RANGE" selector to "**×1.1**" and the "OSC LEVEL" control to "**0.6**" (**1.1kHz, 600mVp-p**).
2. Connect the hot lead of the oscilloscope's CH. 1 probe to **TP101** (RF) and the cold lead to **TP104** (V-Ref.).

∗ Connect the hot lead of the oscilloscope's CH. 2 probe to TP1 on the servo gain adjuster.
Oscilloscope setting: VOLT.....................100mV (CH. 1)
200mV (CH. 2)
SWEEP.................0.5msec.
Input coupling.....AC (both CH. 1 and CH. 2)
Trigger mode.......NORM (trigger CH. 2)

3. Play track **1** (**1kHz**) on the test disc (SZZP1054C).
4. Set the "MODE SELECTOR" switch of the servo gain adjuster to position "**1.**"
5. The waveform as shown at right will appear on the oscilloscope. Adjust **VR102** until the envelope amplitude indicated by the asterisk is minimized uniformly.



※ Minimize the envelope amplitude uniformly.

(9) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

- **Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

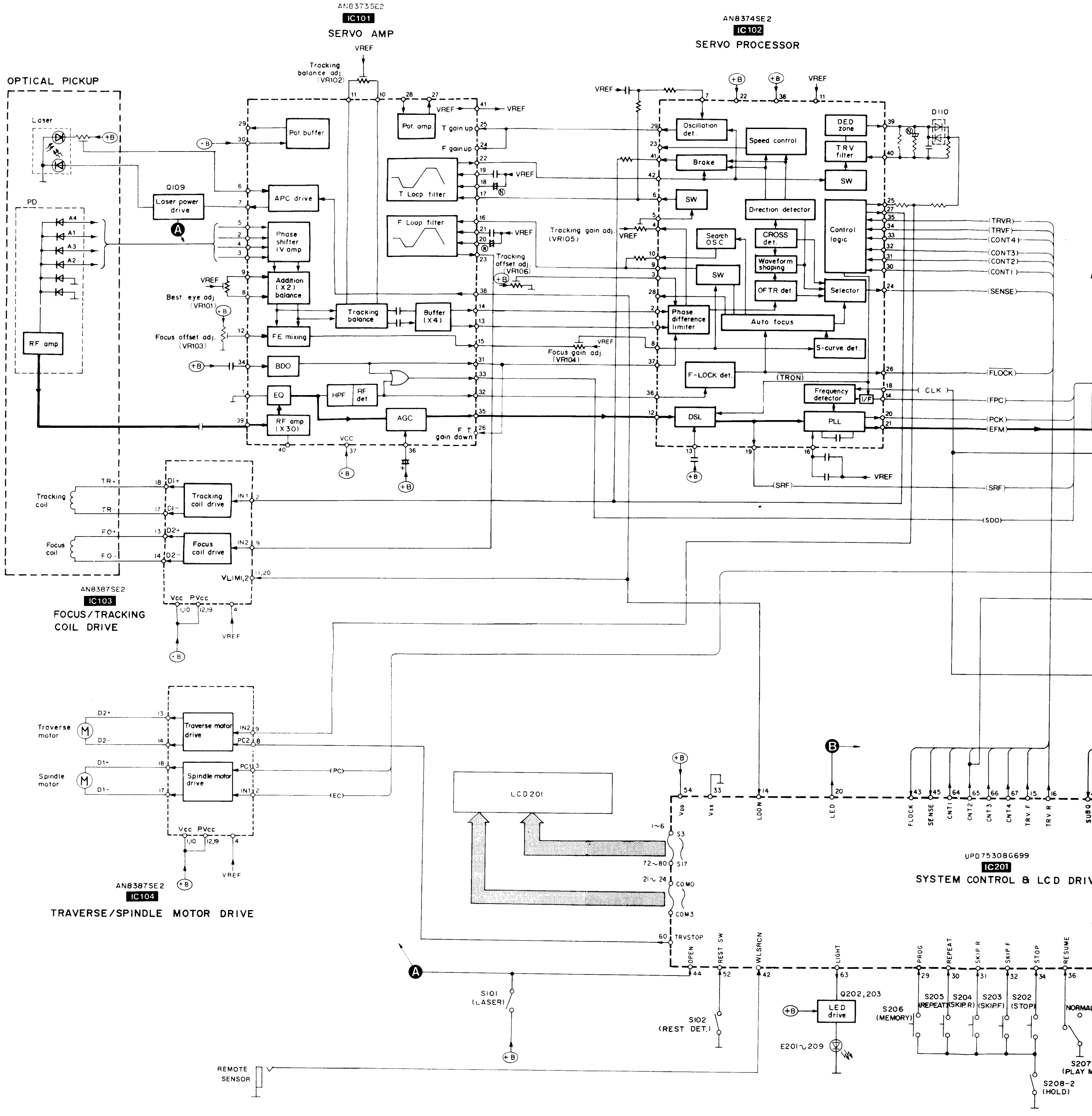
- **Checking Manual Search**

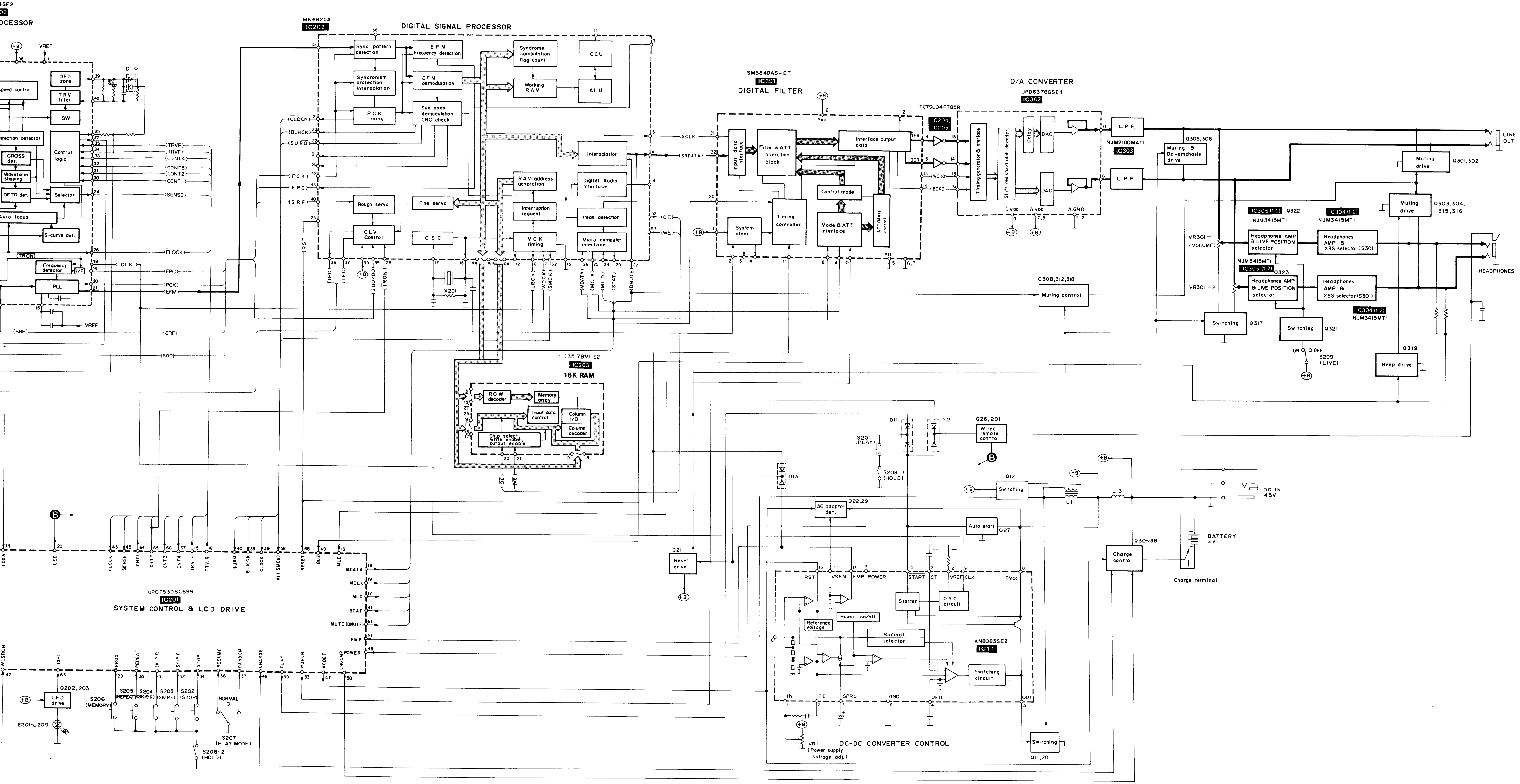
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

∗ **Checking Using Defect Disc**

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

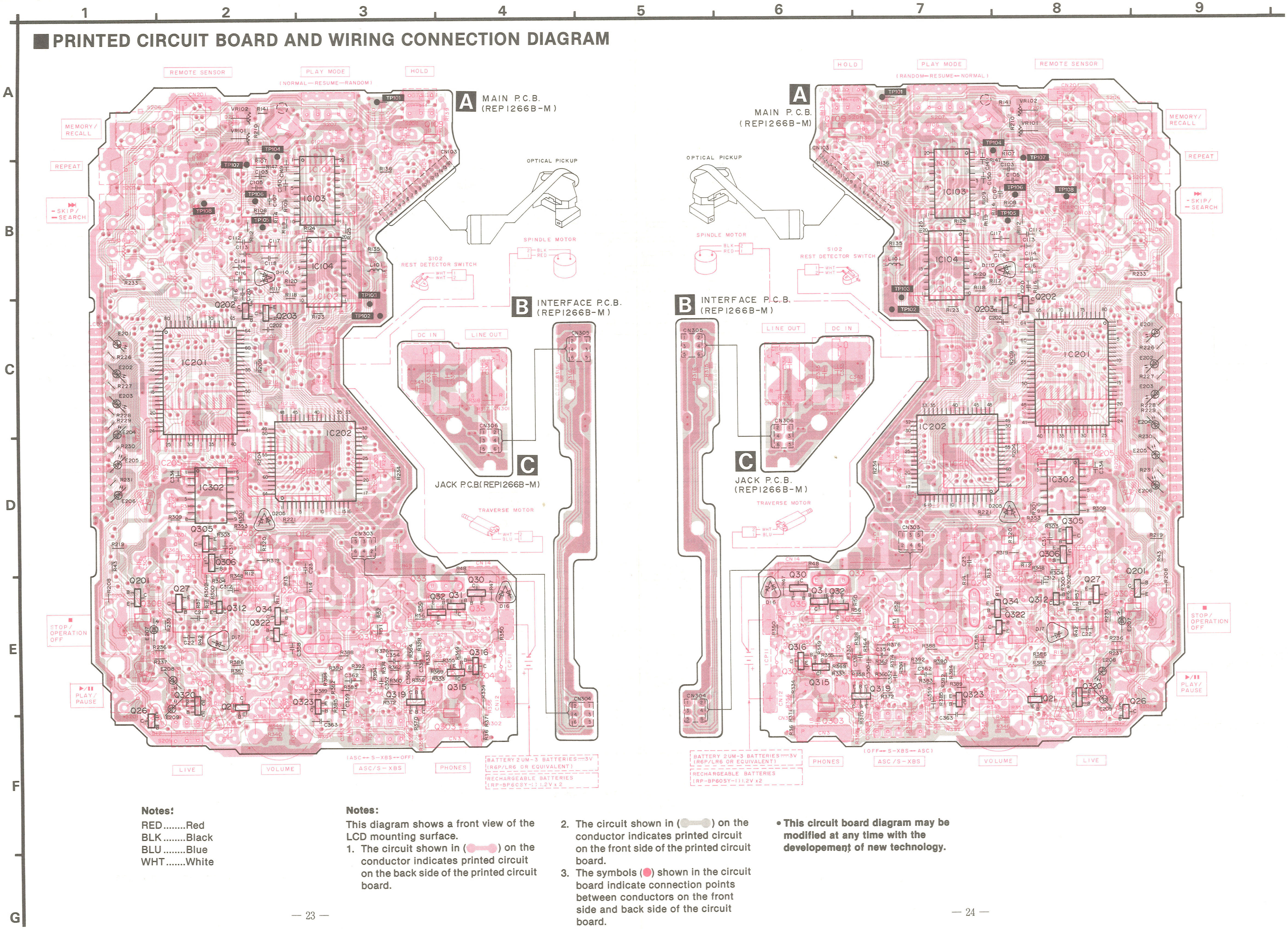
■ BLOCK DIAGRAM


AN8373SE2
IC101
SERVO AMP
AN8374SE2
IC102
SERVO PROCESSOR
OPTICAL PICKUP
Laser
PD
RF amp
Q109
Laser power drive
Pot buffer
Pot. amp
T gain up
F gain up
T Loop filter
F Loop filter
APC drive
Phase shifter I.V amp
Addition (X2) balance
FE mixing
Tracking balance
Buffer (X4)
BDO
EQ
HPF
RF det
AGC
RF amp (X30)
F T gain down
Tracking balance adj (VR102)
Best eye adj (VR101)
Focus offset adj (VR103)
Tracking gain adj (VR105)
Tracking offset adj (VR106)
Focus gain adj (VR104)
VREF
Oscillation det
Speed control
Brake
SW
Direction detector
Search OSC
CROSS det
Waveform shaping
OFTR det
Control logic
Selector
Phase difference limiter
Auto focus
S-curve det
F-LOCK det
Frequency detector
DSL
PLL
DED zone
TRV filter
D110
(TRVR)
(TRVF)
(CONT4)
(CONT3)
(CONT2)
(CONT1)
(SENSE)
(FLOCK)
(CLK)
(FPC)
(PCK)
(EFM)
(TRON)
(SRF)
(SDO)
Tracking coil
Focus coil
TR+
TR-
FO+
FO-
Tracking coil drive
Focus coil drive
VLIM
AN8387SE2
IC103
FOCUS/TRACKING COIL DRIVE
Traverse motor
Spindle motor
D2+
D2-
D1+
D1-
Traverse motor drive
Spindle motor drive
(PC)
(EC)
AN8387SE2
IC104
TRAVERSE/SPINDLE MOTOR DRIVE
LCD201
UPD75308G699
IC201
SYSTEM CONTROL & LCD DRIV
FLOCK
SENSE
CNT1
CNT2
CNT3
CNT4
TRV F
TRV R
LDON
LED
OPEN
REST SW
WLSRCN
LIGHT
PROG
REPEAT
SKIP R
SKIP F
STOP
RESUME
TRVSTOP
COM0
COM3
S101 (LASER)
S102 (REST DET.)
Q202,203
LED drive
E201~209
S206 (MEMORY)
S205 (REPEAT)
S204 (SKIP R)
S203 (SKIP F)
S202 (STOP)
S207 (PLAY)
S208-2 (HOLD)
NORMAL
REMOTE SENSOR
A
B
+B


MN6625A
IC202
DIGITAL SIGNAL PROCESSOR
Sync. pattern detection
EFM Frequency detection
Syncronism protection interpolation
EFM demodulation
PCK timing
Sub code demodulation CRC check
Syndrome computation flag count
Working RAM
CCU
ALU
Interpolation
RAM address generation
Interruption request
Digital Audio interface
Peak detection
Rough servo
Fine servo
CLV Control
OSC
MCK timing
Micro computer interface
X201
LC35178MLE2
IC203
16K RAM
ROW decoder
Memory array
Input data control
Column I/O
Column decoder
Chip select write enable output enable
SM5840AS-ET
IC301
DIGITAL FILTER
Input data interface
Filter & ATT operation block
Interface output data
Timing controller
Control mode
Mode & ATT interface
ATT/Mute control
System clock
TC7SU04FT85R
IC204
IC205
D/A CONVERTER
UPD6376GSE1
IC302
Timing generator & interface
Shift resistor/Latch decoder
Delay
DAC
L.P.F.
NJM2100MAT1
IC303
Q305,306
Muting & De-emphasis drive
LINE OUT
Muting drive
Q301,302
Q303,304, 315,316
IC305(1/2)
Q322
IC304(1/2)
NJM3415MT1
Headphones AMP & LIVE POSITION selector
Headphones AMP & XBS selector (S301)
VR301-1 (VOLUME)
VR301-2
IC305(1/2)
Q323
HEADPHONES
Q308,312,318
Muting control
Switching
Q317
Q321
S209 (LIVE)
Q319
Beep drive
Speed control
DED zone
TRV filter
SW
Direction detector
CROSS det.
Waveform shaping
OFTR det
Control logic
Selector
Auto focus
S-curve det.
Frequency detector
PLL
D110
UPD75308G699
IC201
SYSTEM CONTROL & LCD DRIVE
MDATA
MCLK
MLD
STAT
MUTE (DMUTE)
EMP
POWER
D11
D12
D13
S201 (PLAY)
S208-1 (HOLD)
Q26,201
Wired remote control
Q12
Switching
L11
L13
DC IN 4.5V
AC adaptor det.
Q22,29
Auto start
Q27
Q21
Reset drive
Q30~36
Charge control
BATTERY 3V
Charge terminal
Starter
OSC circuit
Reference voltage
Power on/off
Normal selector
AN8083SE2
IC11
Switching circuit
VR11 (Power supply voltage adj.)
DC-DC CONVERTER CONTROL
Q11,20
Q202,203
LED drive
E201~209
S206 (MEMORY)
S205 (REPEAT)
S204 (SKIP R)
S203 (SKIP F)
S202 (STOP)
S207 (PLAY MODE)
NORMAL
S208-2 (HOLD)

Note:
Audio signal

PRINTED CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
A MAIN P.C.B. (REP1266B-M)
B INTERFACE P.C.B. (REP1266B-M)
C JACK P.C.B(REP1266B-M)
OPTICAL PICKUP
SPINDLE MOTOR
S102 REST DETECTOR SWITCH
TRAVERSE MOTOR
REMOTE SENSOR
PLAY MODE
(NORMAL—RESUME—RANDOM)
HOLD
MEMORY/RECALL
REPEAT
SKIP/SEARCH
STOP/OPERATION OFF
PLAY/PAUSE
LIVE
VOLUME
(ASC←S-XBS←OFF)
ASC/S-XBS
PHONES
DC IN
LINE OUT
BATTERY 2UM-3 BATTERIES—3V (R6P/LR6 OR EQUIVALENT)
RECHARGEABLE BATTERIES (RP-BP60SY-1) 1.2V x2
IC101
IC103
IC104
IC201
IC202
IC302
CN103
CN301
CN303
CN304
CN305
CN306
BLK
RED
WHT
BLU

Notes:

RED........Red
BLK........Black
BLU........Blue
WHT.......White

Notes:

This diagram shows a front view of the LCD mounting surface.

1. The circuit shown in (▬) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in (▬) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

- **This circuit board diagram may be modified at any time with the developement of new technology.**

SCHEMATIC DIAGRAM (Parts list on pages 38~40.)

(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

- **S101** : Laser ON/OFF switch in "**off**" position. (It turns "**on**" with disc holder closed.)
- **S102** : Rest detector in "**off**" position. (It turns "**on**" when optical pickup comes to innermost periphery.)
- **S201** : Play/Pause switch.
- **S202** : Stop/Operation off switch.
- **S203** : Skip/Search (Forward) switch.
- **S204** : Skip/Search (Backward) switch.
- **S205** : Repeat switch.
- **S206** : Memory/Recall switch.
- **S207** : Play mode selector in "normal" position. (random ↔ resume ↔ normal)
- **S208** : Hold switch in "**off**" position.
- **S209** : Live switch.
- **S301** : ASC/S-XBS selector in "**off**" position.
- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack).
  Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.
  - * The parenthesized is the voltage for test disc (1 kHz, L+R, 0dB) in play mode, and the other, for no disc in stop mode.
  - * AC adaptor is used for power supply.

- ▬ : Positive voltage lines.
- ▨ : Audio signal lines.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- ※ marks indicate printed resistor.

* **Caution !**
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

* Cover the parts boxed made of plastics with aluminum foil.

* Ground the soldering iron.

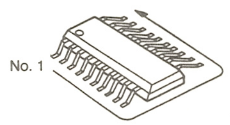
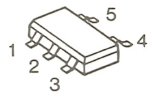
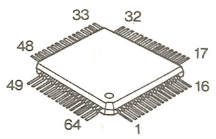
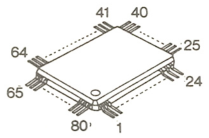
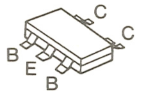
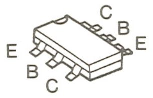
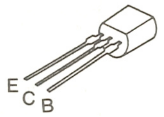
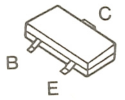
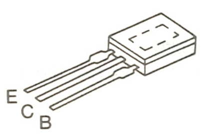
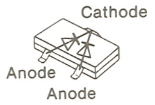
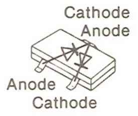
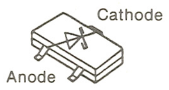
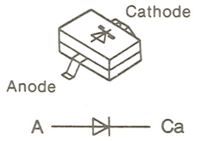
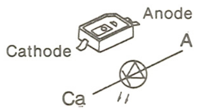
* Put a conductive mat on the work table.

* Do not touch the legs of IC or LSI with fingers directly.

* The supply part number is described alone in the replacement parts.

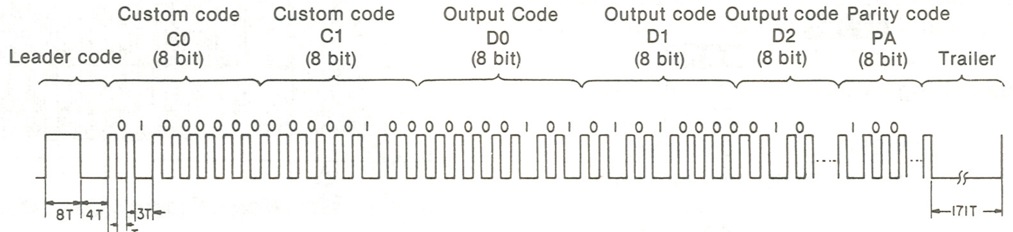
Part No.	Production Part No.	Supply Part No.
IC304, 305	NJM3415MT1	NJM3415M

TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

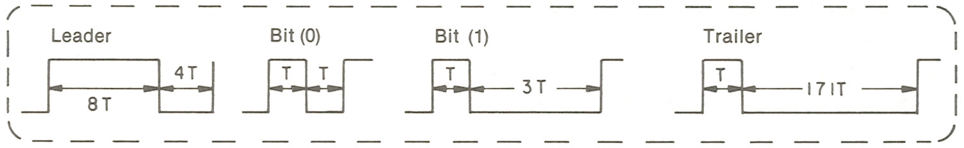
 NJM2100MAT1 8 pin NJM3415MT1 8 pin AN8083SE2 16 pin UPD6376GSE1 16 pin AN8387SE2 20 pin SM5840AS-ET 22 pin LC3517BMLE2 24 pin AN8373SE2 42 pin AN8374SE2 42 pin				TC7SU04FT85R 
MN6625A  33 32 48 17 49 16 64 1	UPD75308G699  41 40 64 25 65 24 80 1	FMG4T148 	IMD6T109 	2SD1302STTA 
 DTA114TUT107 DTA114YKT147 DTC114TKT147 DTA143TKT97 DTB123YKT147 DTC143TKT97 DTC144EKT97 2SB709QRSTW 2SB1218QRSTW 2SD601QRSTW 2SD1819QRSTW 2SD1328STTW 2SD1328RSTTW				2SD2005PQRTA 
MA151WKTW  Cathode Anode Anode	MA143TW MA153TW  Cathode Anode Anode Cathode	MA704ATW  Cathode Anode	MA701TW MA8100MTW  Cathode Anode A Ca	LN1361CUY-TR  Anode A Cathode Ca

REMOTE CONTROL TRANSMITTER (EURSBFA06NT)

• DATA CODE

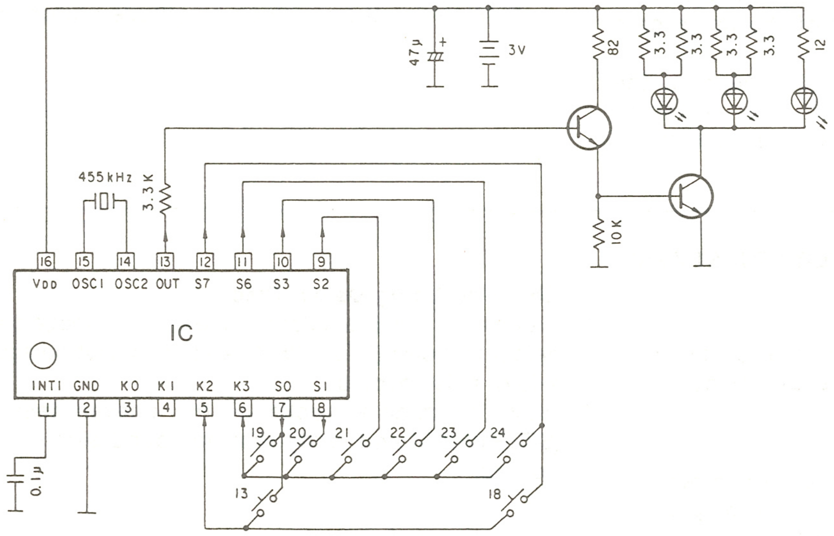

Leader code
Custom code C0 (8 bit)
Custom code C1 (8 bit)
Output Code D0 (8 bit)
Output code D1 (8 bit)
Output code D2 (8 bit)
Parity code PA (8 bit)
Trailer
0 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1 0 1 0 1 0 1 0 0 0 0 0 1 0 1 0 0
8T
4T
3T
T
T
171T

※ T≒0422ms

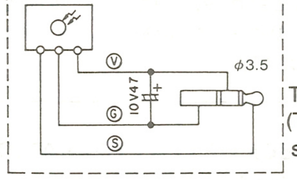

Leader
8T
4T
Bit (0)
T
T
Bit (1)
T
3T
Trailer
T
171T

Key No.	Command	D 2	P A
13	M. SCAN	0 1 1 0 0 0 1 0	0 0 1 1 0 1 1 1
18	REPEAT ↻	1 1 1 0 0 0 1 0	1 0 1 1 0 1 1 1
19	LEVEL −	1 0 0 0 0 1 0 0	1 1 0 1 0 0 0 1
20	LEVEL +	0 0 0 0 0 1 0 0	0 1 0 1 0 0 0 1
21	-SKIP/-SEARCH ⏮	1 0 0 1 0 0 1 0	1 1 0 0 0 1 1 1
22	-SKIP/-SEARCH ⏭	0 1 0 1 0 0 1 0	0 0 0 0 0 1 1 1
23	STOP ■	0 0 0 0 0 0 0 0	0 1 0 1 0 1 0 1
24	PLAY/PAUSE ▶❚❚	0 1 0 1 0 0 0 0	0 0 0 0 0 1 0 1

• SCHEMATIC DIAGRAM

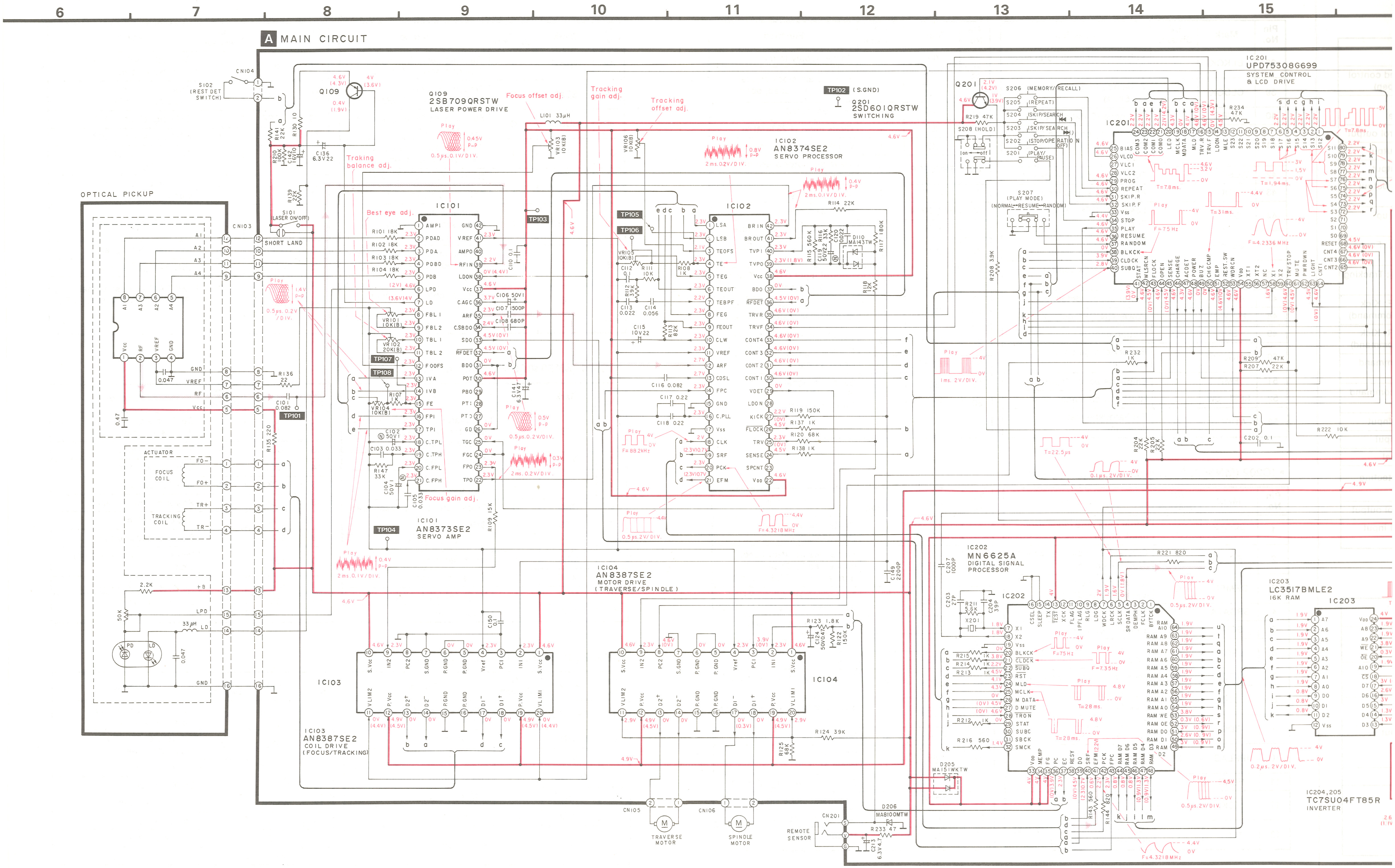

47μ
3V
82
3.3
3.3
3.3
3.3
12
455kHz
3.3K
10K
16 15 14 13 12 11 10 9
VDD OSC1 OSC2 OUT S7 S6 S3 S2
IC
INT1 GND K0 K1 K2 K3 S0 S1
1 2 3 4 5 6 7 8
0.1μ
19 20 21 22 23 24
13 18

REMOTE CONTROL RECEIVER UNIT (RCDNTR1008A)


V
G
S
10V47
φ3.5

To CN201 (To Remote sensor jack)

A MAIN CIRCUIT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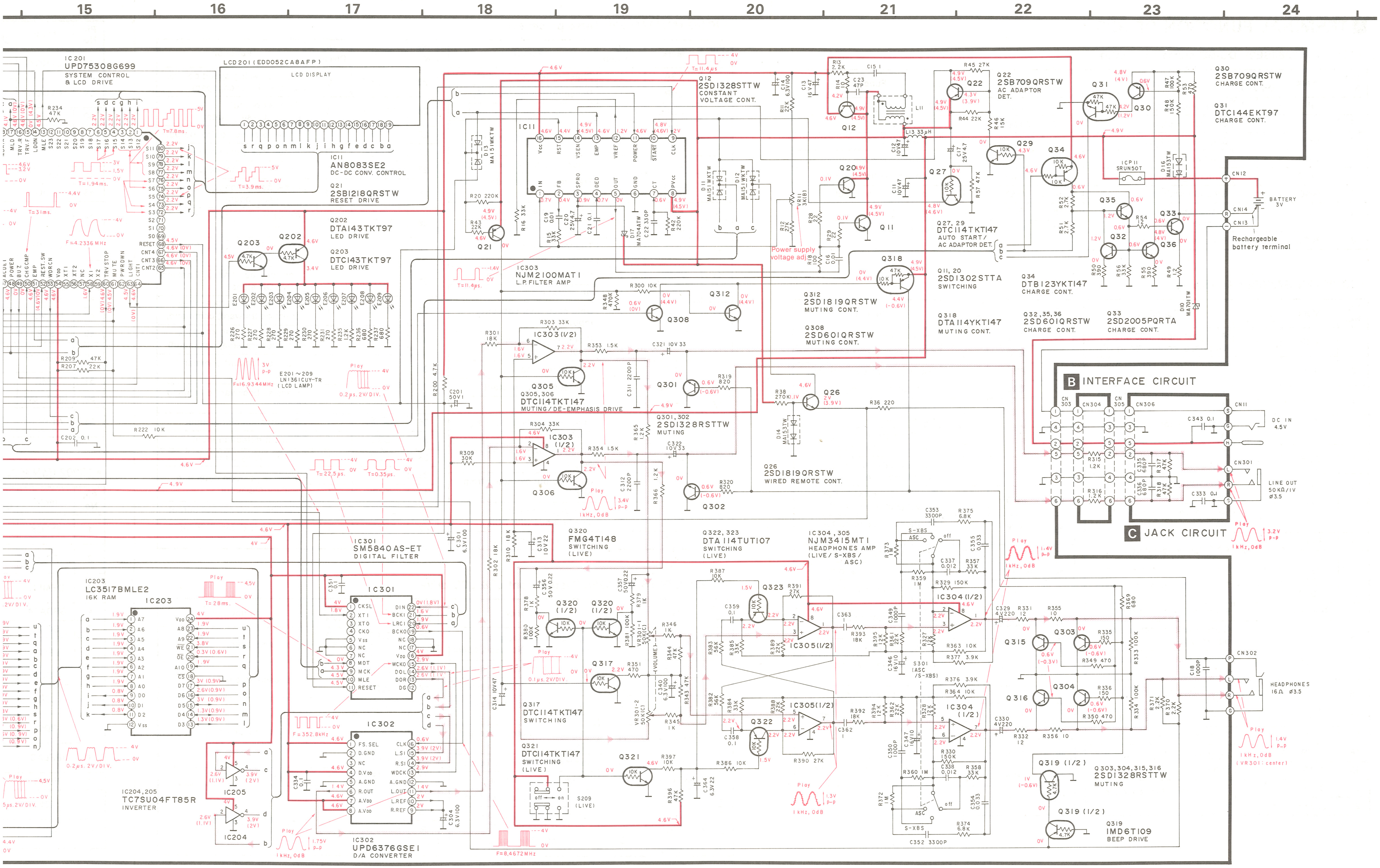
15
OPTICAL PICKUP
CN104
S102 (REST DET SWITCH)
Q109
2SB709QRSTW
LASER POWER DRIVE
Focus offset adj.
L101 33μH
VR103 10K(B)
Tracking gain adj.
Tracking offset adj.
VR106 10K(B)
TP102 (S.GND)
Q201 2SD601QRSTW SWITCHING
Traking balance adj.
S101 LASER ON/OFF
CN103
SHORT LAND
Best eye adj.
IC101
AN8373SE2
SERVO AMP
Focus gain adj.
TP103
TP104
TP105
TP106
TP107
TP108
TP101
IC102
AN8374SE2
SERVO PROCESSOR
VR105 10K(B)
VR101 10K(B)
VR102 20K(B)
VR104 10K(B)
ACTUATOR
FOCUS COIL
TRACKING COIL
IC103
AN8387SE2
COIL DRIVE
(FOCUS/TRACKING)
IC104
AN8387SE2
MOTOR DRIVE
(TRAVERSE/SPINDLE)
CN105
CN106
TRAVERSE MOTOR
SPINDLE MOTOR
CN201
REMOTE SENSOR
D206 MA8100MTW
D205 MA151WKTW
Q201
S206 (MEMORY/RECALL)
S205 (REPEAT)
S204 (SKIP/SEARCH)
S203 (SKIP/SEARCH)
S202 (STOP/OPERATION OFF)
S201 (PLAY/PAUSE)
S208 (HOLD)
S207 (PLAY MODE) (NORMAL—RESUME—RANDOM)
IC201
UPD75308G699
SYSTEM CONTROL
& LCD DRIVE
IC202
MN6625A
DIGITAL SIGNAL PROCESSOR
IC203
LC3517BMLE2
16K RAM
IC204,205
TC7SU04FT85R
INVERTER
Play
0.5μs.0.1V/DIV.
2ms.0.2V/DIV.
2ms.0.1V/DIV.
F=88.2kHz
F=4.3218MHz
F=7.35Hz
F=75Hz
T=28ms.
T=7.8ms.
T=1.94ms.
T=3.1ms.
F=4.2336MHz
T=22.5μs
0.1μs.2V/DIV.
0.2μs.2V/DIV.
1ms.2V/DIV.


15
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IC201 UPD75308G699 SYSTEM CONTROL & LCD DRIVE
LCD201 (EDD052CA8AFP) LCD DISPLAY
IC11 AN8083SE2 DC-DC CONV. CONTROL
Q21 2SB1218QRSTW RESET DRIVE
Q202 DTA143TKT97 LED DRIVE
Q203 DTC143TKT97 LED DRIVE
IC303 NJM2100MAT1 L.P. FILTER AMP
E201 ~ 209 LN1361CUY-TR (LCD LAMP)
Q12 2SD1328STTW CONSTANT VOLTAGE CONT.
Q22 2SB709QRSTW AC ADAPTOR DET.
Q30 2SB709QRSTW CHARGE CONT.
Q31 DTC144EKT97 CHARGE CONT.
Q27, 29 DTC114TKT147 AUTO START / AC ADAPTOR DET.
Q11, 20 2SD1302STTA SWITCHING
Q34 DTB123YKT147 CHARGE CONT.
Q318 DTA114YKT147 MUTING CONT.
Q32, 35, 36 2SD601QRSTW CHARGE CONT.
Q33 2SD2005PQRTA CHARGE CONT.
Q312 2SD1819QRSTW MUTING CONT.
Q308 2SD601QRSTW MUTING CONT.
Q305, 306 DTC114TKT147 MUTING / DE-EMPHASIS DRIVE
Q301, 302 2SD1328RSTTW MUTING
Q26 2SD1819QRSTW WIRED REMOTE CONT.
Power supply voltage adj.
BATTERY 3V
Rechargeable battery terminal
B INTERFACE CIRCUIT
C JACK CIRCUIT
DC IN 4.5V
LINE OUT 50kΩ/1V ø3.5
HEADPHONES 16Ω ø3.5
IC301 SM5840AS-ET DIGITAL FILTER
IC203 LC3517BMLE2 16K RAM
IC204, 205 TC7SU04FT85R INVERTER
IC302 UPD6376GSE1 D/A CONVERTER
Q320 FMG4T148 SWITCHING (LIVE)
Q322, 323 DTA114TUT107 SWITCHING (LIVE)
IC304, 305 NJM3415MT1 HEADPHONES AMP (LIVE / S-XBS / ASC)
Q317 DTC114TKT147 SWITCHING
Q321 DTC114TKT147 SWITCHING (LIVE)
S209 (LIVE)
S301 (ASC / S-XBS)
VR301 VOLUME
Q303, 304, 315, 316 2SD1328RSTTW MUTING
Q319 IMD6T109 BEEP DRIVE
F=4.2336 MHz
F=16.9344MHz
F=352.8kHz
F=8.4672MHz
Play 1kHz, 0dB

■TERMINAL FUNCTION OF IC'S

• IC11: (AN8083SE2): DC-DC converter control

Pin No.	Mark	I/O Division	Function
1	IN	I	Error amp input
2	FB	O	Error amp output
3	SPRO	I	Short protect input
4	DED	I	Dead time input
5	OUT	O	Switching output
6	GND	I	Ground terminal
7	CT	I	Triangular wave oscillator capacitor input
8	PVCC	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
9	CLK	I	Clock input
10	$\overline{\text{START}}$	I	Start input
11	POWER	I	Power ON/OFF
12	VREF	O	Reference voltage output
13	EMP	O	Empty detection output
14	VSEN	I	Empty detection input
15	RST	O	Reset output
16	VCC	I	Power supply terminal

• IC101 (AN8373SE2): Servo amp.

Pin No.	Mark	I/O Division	Function
1	AMPI	I	RF signal input (X30 amp.) (Not used, connected to GND)
2	PDAD	I	Photo detector current input (A2)
3	PDA	I	Photo detector current input (A1)
4	PDBD	I	Photo detector current input (A4)
5	PDB	I	Photo detector currrent input (A3)
6	LPD	I	Non-inverting laser power input
7	LD	O	Laser power auto control output
8	FBL1	I	PD balance adjustment
9	FBL2	I	
10	TBL1	I	Tracking balance adjustment
11	TBL2	I	
12	FOOFS	I	Focus offset adjustment
13	IVA	O	Current/voltage conversion output (A)
14	IVB	O	Current/voltage conversion output (B)
15	FE	O	Focus gain adjustment output
16	FPI	I	Focus error signal input
17	TPI	I	Tracking error signal input
18	C. TPL	I	Tracking error filter capacitor input
19	C. TPH		
20	C. FPL	I	Focus error filter capacitor input
21	C. FPH		

Pin No.	Mark	I/O Division	Function
22	TPO	O	Tracking error signal output
23	FPO	O	Focus error signal output
24	FGC	I	Focus gain up signal output
25	TGC	I	Tracking gain up signal input
26	GD	I	Focus/tracking gain down signal input
27	PTO	O	Position detection amp. output (Not used, open)
28	PTI	I	Position detecting amp. output (Not used, open)
29	PBO	O	Position detection buffer output (Not used, open)
30	POT	I	Position detecting buffer input
31	BDO	O	Dropout detection output
32	$\overline{\text{RFDET}}$	O	RF detection signal output
33	SDO	O	Dropout detection pulse output
34	C. SBDO	I	Dropout detecting capacitor input
35	ARF	O	RF signal output
36	C. AGC	I	AGC detecting capacitor input
37	VCC	I	Power supply terminal
38	LDON	I	Laser power control input
39	RF IN	I	RF signal input
40	AMPO	O	RF signal output (Not used, open)
41	VREF	O	Reference voltage output
42	GND	I	Ground terminal

• IC102 (AN8374SE2): Servo processor

Pin No.	Mark	I/O Division	Function
1	LSA	I	Phase difference input (A)
2	LSB	I	Phase difference input (B)
3	TEOFS	I	Tracking offset adjustment
4	TE	O	Tracking gain adjustment
5	TEG	I	
6	TE OUT	O	Tracking error signal output
7	TE BPF	I	Tracking error gain detecting filter
8	FEG	I	Focus gain adjustment
9	FE OUT	O	Focus error signal output
10	CLW	O	Triangular wave oscillator capacitor input
11	VREF	I	Reference voltage input
12	ARF	I	RF signal input
13	CDSL	I	Data slice filter capacitor input
14	FPC	I	Frequency difference signal input
15	GND	I	Ground terminal
16	C. PLL	I	PLL loop filter constant
17	VSS	I	Ground terminal
18	CLK	I	Frequency pull-in clock signal (88.2kHz) input
19	SRF	O	Sliced and digitized RF signal output
20	PCK	O	Clock output extracted from SRF
21	EFM	O	EFM signal output synchronous with PCK
22	VDD	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
23	SPCNT	O	Track crossing speed control output (Not used, open)
24	SENSE	O	Selector output (track crossing state)
25	TRV	O	Traverse servo control output
26	$\overline{\text{FLOCK}}$	O	Focus lock signal output
27	KICK	O	Track kick signal output
28	LDON	O	Laser power control output (Not used, open)
29	VDET	O	Focus/tracking gain up output
30	CNT1	I	Control input ($\overline{\text{FOON}}$: Focus servo ON signal)
31	CNT2	I	Control input ($\overline{\text{TRON}}$: Tracking servo ON signal)
32	CNT3	I	Control input (KICKF: Kick direction (forward) command)
33	CNT4	I	Control input (KICKR: Kick direction (reverse) command)
34	TRVF	I	Traverse forward command signal
35	TRVR	I	Traverse backward command signal
36	$\overline{\text{RFDET}}$	I	RF detection signal input
37	BDO	I	Dropout detection input
38	VCC	I	Power supply terminal
39	TVPO	O	Traverse position detecting resistor/capacitor
40	TVPI	I	
41	BROUT	O	Tracking drive control output
42	BRIN	I	Tracking error signal input

• IC201 (UPD75308G699): System control & LCD drive

Pin No.	Mark	I/O Division	Function
1 ∫ 12	S12 ∫ S23	O	Segment signal output (7 pin～12 pin) (Not used, open)
13	MLE	O	Mode set latch enable signal
14	LDON	O	Laser power control output
15	TRV • F	O	Traverse forward command signal
16	TRV • R	O	Traverse backward command signal
17	MLD	O	Command load signal output
18	MDATA	O	Command data output
19	MCLK	O	Command clock signal output
20	LED	O	Remote control detection
21 ∫ 24	COM0 ∫ COM3	O	LCD common line output

Pin No.	Mark	I/O Division	Function
25	BIAS	O	(Not used, open)
26	VLC0	—	
27	VLC1	—	(Not used, open)
28	VLC2		
29	PROG	I	Key return signal input
30	REPEAT		
31	SKIP • R		
32	SKIP • F		
33	VSS	I	GND terminal
34	STOP	I	Key return signal input
35	PLAY		
36	RESUME		
37	RANDOM		

Pin No.	Mark
38	BLKCK
39	CLDCK
40	SUBQ
41	STAT
42	WLSRCN
43	FLOCK
44	OPEN
45	SENSE
46	CHARGE
47	ACDET
48	POWER
49	BUZ
50	CHGCMP
51	EMP
52	REST • SW
53	WDRCN

• IC202 (MN6625

Pin No.	Mark
1	BYTCK
2	FCLK
3	DEMPH
4	SRDATA
5	SCLK
6	LRCK
7	WDCK
8	LDG
9	RDG
10	IPFLAG
11	FLAG
12	XCK
13	$\overline{\text{TEST}}$

ction
speed control ed, open)
t state)
control output
nal output
al output
ntrol output n)
gain up
$\overline{\mathrm{FOON}}$: Focus l)
$\overline{\mathrm{TRON}}$: Tracking l)
KICKF: Kick rd) command)
KICKR: Kick se) command)
d command
ard command
gnal input
on input
erminal
n detecting or
ontrol output
ignal input

tion
)
)
l input
l input

Pin No.	Mark	I/O Division	Function
38	BLKCK	I	Sub-code block (Q data) clock (75 Hz)
39	CLDCK	I	Sub-code frame (Q data) clock (7.35 kHz)
40	SUBQ	I	Sub-code (Q data) output
41	STAT	I	Processing condition (CRC, CUE, CLVS, FCLV. TT STOP) input
42	WLSRCN	I	Offering signal of edge det.
43	FLOCK	I	Focus lock signal input
44	OPEN	I	Laser ON/OFF switch detection
45	SENSE	I	Selector input (track crossing state)
46	CHARGE	O	Battery charge control terminal
47	ACDET	O	Power supply detection
48	POWER	O	Power ON/OFF output
49	BUZ	O	Muting control
50	CHGCMP	I	Battery charge control terminal
51	EMP	I	Empty detection input
52	REST • SW	I	REST switch signal input
53	WDRCN	O	Rechargeable battery detection
54	VDD	I	Power supply terminal
55	XT1	I	Sub-system clock crystal terminal (Not used, open)
56	XT2	—	
57	NC	—	Not connected
58	X1	I	Clock input (4.2336 MHz)
59	X2	I	Clock input (Not used, open)
60	TRVSTOP	O	Traverse motor brake control output
61	MUTE	O	Muting control
62	PWRDWN	—	(Not used, open)
63	LIGHT	O	LED drive command signal
64	CNT1	O	Control input ($\overline{\mathrm{FOON}}$: Focus servo ON signal)
65	CNT2	O	Control input ($\overline{\mathrm{TRON}}$: Tracking servo ON signal)
66	CNT3	O	Control input (KICKF: Kick direction (forward) command)
67	CNT4	O	Control input (KICKR: Kick direction (reverse) command)
68	RESET	I	Reset signal
69 ~ 80	S0 ~ S11	O	Segment signal output (69 pin~71 pin) (Not used open)

• IC202 (MN6625A): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	BYTCK	O	Serial data byte clock (Not used, open)
2	FCLK	O	Crystal frame clock (7.35 kHz) (Not used,open)
3	DEMPH	O	De-emphasis ON signal (de-emphasis ON at "H")
4	SRDATA	O	Serial data output (MSB first)
5	SCLK	O	Serial bit clock output
6	LRCK	O	LR discrimination signal output
7	WDCK	O	Serial data output word clock
8	LDG	O	L channnel deglitch signal (Not used, open)
9	RDG	O	R channel deglitch signal (Not used, open)
10	IPFLAG	O	Interpolation flag (interpolation at "H")
11	FLAG	O	Error flag terminal
12	XCK	O	Clock (16.9344 MHz) output (Not used, open)
13	$\overline{\mathrm{TEST}}$	I	Test mode selection (Not used, connected to power supply)
14	TX	O	Digital signal output (Not used, open)
15	SLEEP	I	Mode selector (Not used, connected to GND) ("L": normal, "H": SLEEP mode)
16	CSEL	I	Test terminal ("L": normal) (Not used, connected to GND)
17	X1	I	Clock input (16.9344 MHz)
18	X2	O	Clock output (16.9344 MHz)
19	VSS	I	GND terminal
20	BLKCK	O	Sub-code block (Q data) clock (75 Hz)
21	$\overline{\mathrm{CLDCK}}$	O	Sub-code frame (Q data) clock (7.35 kHz)
22	$\overline{\mathrm{SUBQ}}$	O	Sub-code (Q data) output
23	$\overline{\mathrm{RST}}$	I	Reset signal input (reset at "L")
24	MLD	I	Command load signal input
25	MCLK	I	Command clock signal input
26	MDATA	I	Command data input
27	DMUTE	I	Muting control
28	$\overline{\mathrm{TRON}}$	I	Tracking servo ON signal (tracking servo ON at "L")
29	STAT	O	Processing condition (CRC, CUE, CLVS, TT STOP, FCLV)
30	SUBC	O	Sub-code serial output data (Not used, open)
31	SBCK	I	Clock for sub-code serial output (Not used, open)
32	SMCK	O	Clock output (4.2336 MHz)
33	VDD	I	Power supply termial
34	MEMP	I	Emphasis signal input (Not used, connected to power supply)
35	FG	I	Spindle motor FG signal input (Not used, connected to power supply)
36	PC	O	Spindle motor ON signal (ON at "L")
37	EC	O	Spindle motor drive signal
38	RESY	O	Resynchronizing signal (Not used, open)
39	DO	I	Drop-out signal (Drop-out at "H")
40	SRF	I	EFM signal input (DSL)
41	EFM	I	EFM signal input (PLL)
42	PCK	I	PLL extract clock input (4.3218 MHz)
43	FPC	O	FLL frequency comparision signal
44 ~ 51	D7 ~ D0	I/O	16K RAM data input/output
52	RAM/OE	O	16K RAM $\overline{\mathrm{OE}}$ signal
53	RAM/WE	O	16K RAM $\overline{\mathrm{WE}}$ signal
54 ~ 64	RAM/A0 ~ RAM/A10	O	16K RAM address signal (RAMA0: LSB, RAMA10: MSB)

• IC301 (SM5840AS-ET): Digital filter

Pin No.	Mark	I/O Division	Function
1	CKSL	I	Oscillator and input frequency selector (Not used, connected to power supply)
2	XT1	I	Oscillator input
3	XT0	O	Oscillator output (Not used, open)
4	CKO	O	Clock output (Not used, open)
5	VSS	—	GND terminal
6, 7	NC	—	(Connected to GND)
8	MDT	I	Mode set data
9	MCK	I	Mode set clock
10	MLE	I	Mode set latch enable
11	RESET	I	Reset input
12	DG	O	Deglitch signal (Not used, open)
13	DOR	O	Rch data output
14	DOL	O	Lch data output
15	WCKO	O	Word clock output
16	VDD	I	Power supply terminal
17, 18	NC	—	Not connected
19	BCKO	O	Serial bit clock output
20	LRCI	I	Input data sample rate (fs) clock
21	BCKI	I	Serial bit clock input
22	DIN	I	Serial data input

• IC302 (UPD6376GSE1): D/A converter

Pin No.	Mark	I/O Division	Function
1	FS. SEL	—	(Not used, connected to power supply)
2	D. GND	I	GND terminal
3	NC	—	Not connected
4	D. VDD	I	Power supply terminal
5	A. GND	I	GND terminal
6	R. OUT	O	Rch signal output
7	A. VDD	I	Power supply terminal
8			
9	R. REF	O	Rch reference voltage capacitor output
10	L. REF	O	Lch reference voltage capacitor output
11	L. OUT	O	Lch signal output
12	A. GND	I	GND terminal
13	WDCK	I	Word clock input
14	R. SI	I	Rch data input
15	L. SI	I	Lch data input
16	SLK	I	Serial bit clock input

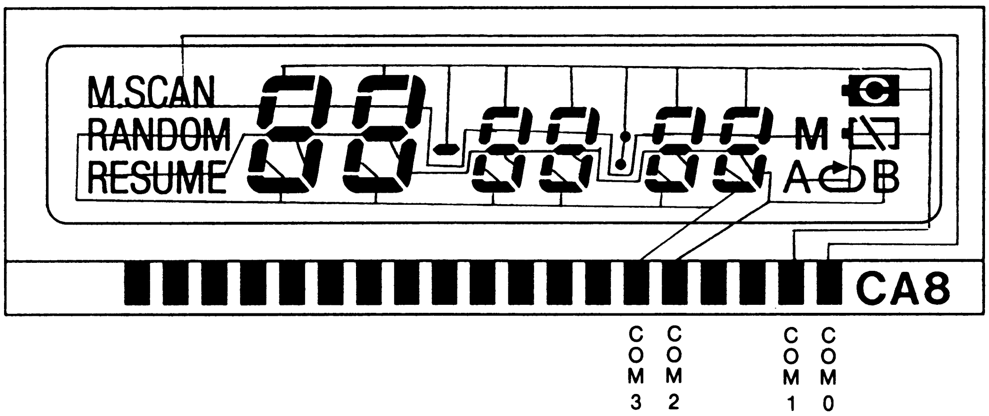
- **IC103, 104 (AN8387SE2): Traverse & spindle motor drive**

Pin No.	Mark	I/O Division	Function
1	S. VCC	I	Power supply terminal
2	IN1	I	Spindle motor drive signal input and tracking coil drive signal input
3	PC1	I	Spindle motor ON signal input
4	VREF	I	Reference voltage input
5	P. GND	I	Ground terminal
6			
7	S. GND	I	Ground terminal
8	PC2	I	Traverse motor brake control input
9	IN2	I	Traverse motor drive signal input and focus coil drive signal input

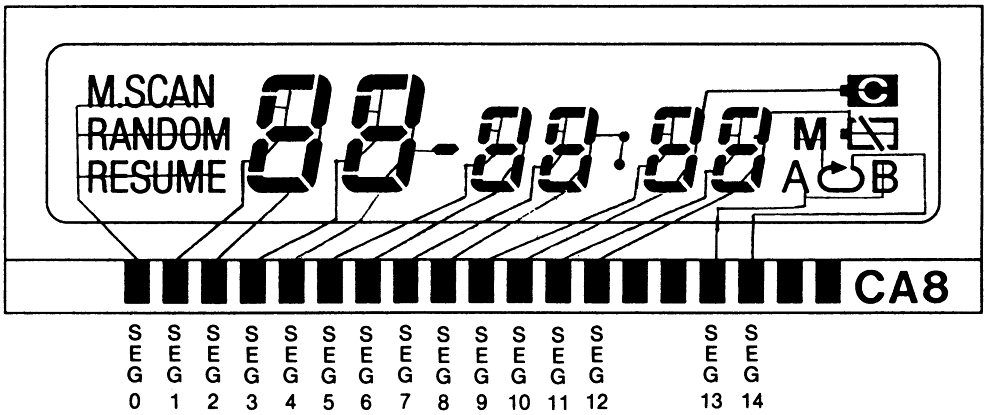
Pin No.	Mark	I/O Division	Function
10	S. VCC	I	Power supply terminal
11	VLIM2	I	Voltage limit terminal
12	P. VCC	I	Power supply terminal
13	D2+	O	Traverse motor drive signal output and focus coil drive signal output
14	D2−		
15	P. GND	I	Ground terminal
16			
17	D1−	O	Spindle motor drive signal output and tracking coil drive signal output
18	D1+		
19	P. VCC	I	Power supply terminal
20	VLIM1	I	Voltage limit terminal

INTERNAL CONNECTIONS OF LCD

- **Common connection diagram**

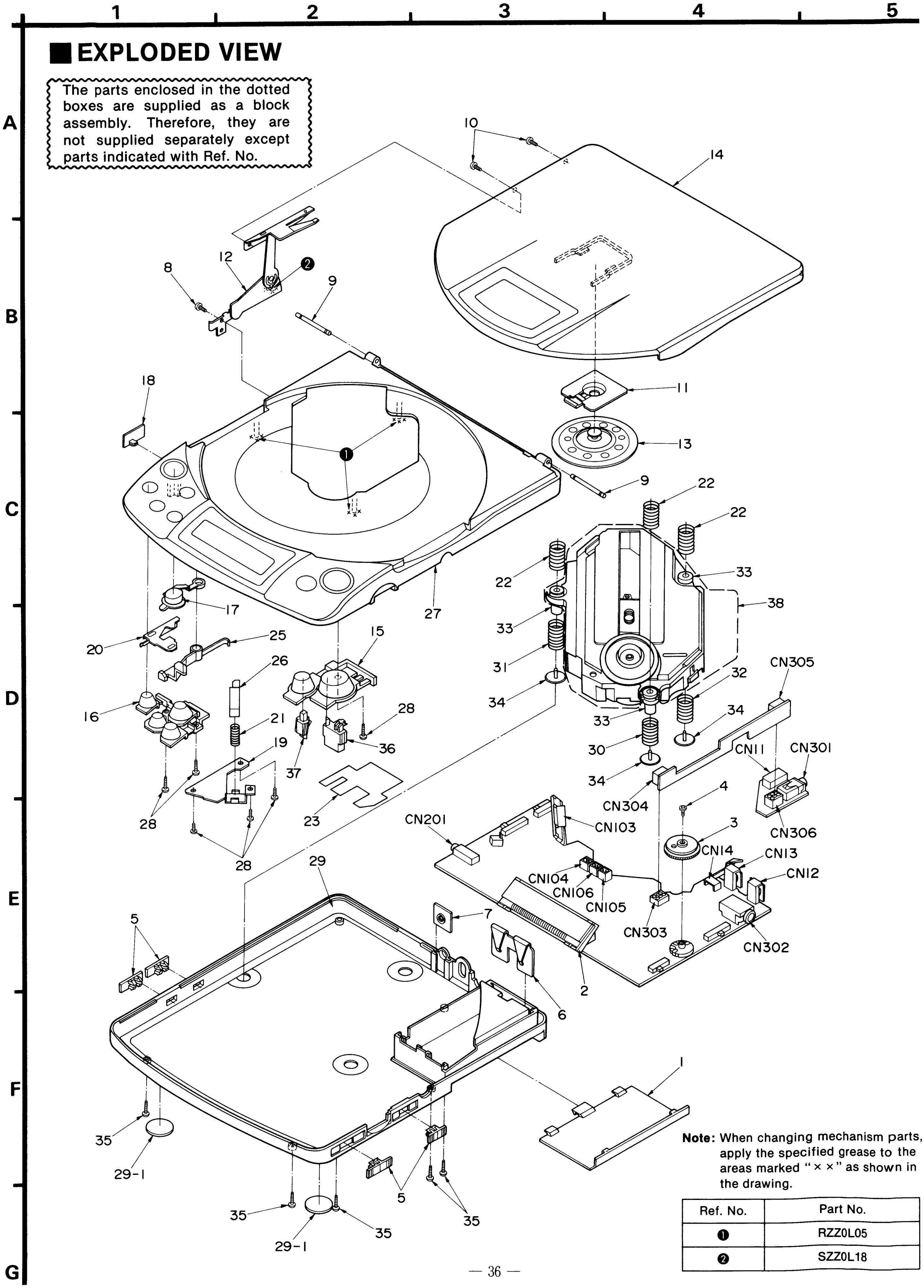

M.SCAN
RANDOM
RESUME
M
A
B
CA8
COM 3
COM 2
COM 1
COM 0

- **Segment connection diagram**


M.SCAN
RANDOM
RESUME
M
A
B
CA8
SEG 0
SEG 1
SEG 2
SEG 3
SEG 4
SEG 5
SEG 6
SEG 7
SEG 8
SEG 9
SEG 10
SEG 11
SEG 12
SEG 13
SEG 14

EXPLODED VIEW

The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.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C
D
E
F
G
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12
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❷
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CN305
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37
30
CN11
CN301
34
CN304
4
28
23
CN201
CN103
3
28
29
CN306
CN14
CN13
CN104
CN12
CN106
CN105
5
7
CN303
CN302
2
6
1
35
29-1
5
35
35
35
29-1

Note: When changing mechanism parts, apply the specified grease to the areas marked "× ×" as shown in the drawing.

Ref. No.	Part No.
❶	RZZ0L05
❷	SZZ0L18

REPLACEMENT PARTS LIST

Notes : • Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
• The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG:
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RKK0009-3K	BATTERY COVER	
2	RJF0009	LCD HOLDER	
3	SBND90ZK0A	KNOB, H. P. VOLUME	
4	XQN17+C3FZ	SCREW	
5	RGV0068-1K	KNOB, ASC/LIVE/HOLD/P. MODE	
6	RJC93007	BATTERY TERMINAL (COMMON)	
7	RMA0110	ANGLE	
8	RHE5155YA	SCREW	
9	RMS0105-1	SHAFT	
10	RHE5097ZA	SCREW	
11	RMQ0163-1	CLAMPER HOLDER	
12	RXA0117	LINK ANGLE ASS'Y	
13	RXQ0218	CLAMPER ASS'Y	
14	RYF0171A-K	DUST COVER	
15	RGU0656	BUTTON, OPERATION A	
16	RGU0657	BUTTON, OPERATION B	
17	RGU0658	BUTTON, OPEN	
18	RGV0090	KNOB, LOCK	
19	RMA0519	SPRING HOLDER	
20	RMA0540	LOCK PLATE	
21	RMB0213	SPRING (KICK)	
22	RMB0221	FLOATING SPRING B (BLACK)	
23	RMV0048	SHEET	
25	RML0233	OPEN LEVER	
26	RMR0488	ACTION GUIDE	
27	RYK0287A-K	INTERMEDIATE CABINET ASS'Y	
28	XTN17+4J	SCREW	
29	RFKJLXP505EG	BOTTOM CABINET ASS'Y	(EG)
29	RFKJLXP505EB	BOTTOM CABINET ASS'Y	(EB, GC, GN)
29-1	SHGD54-1	FOOT	
30	RMB0223	FLOATING SPRING D (SILVER)	
31	RMB0227	FLOATING SPRING E (GREEN)	
32	RMB0228	FLOATING SPRING F (RED)	
33	RMG0229	FLOATING RUBBER	
34	RMR0530-K	FIXED GUIDE	
35	XTN17+6GFZ	SCREW	
36	RMR0527	PHOTOCONDUCTIVE PLATE (A)	
37	RMR0528	PHOTOCONDUCTIVE PLATE (B)	
38	SODD100Z	TRAVERSE DECK UNIT	
		PACKING MATERIAL (S)	

Ref. No.	Part No.	Part Name & Description	Remarks
P1	RPK0311	PACKING CASE	
P2	RPN0367-1	CUSHION (TOP)	
P3	RPN0368	CUSHION (BOTTOM)	
P4	SPPD1	PROTECTION BAG (UNIT)	
P5	SPSD14	PROTECTION SHEET (T. T.)	
P6	RPQF0017	ACCESSORIES BOX	
P7	RPQ0059	SPACER	(EG, GN)
P8	RPQ0199	PAD	(EG)
P8	RPQ0200	PAD	(EB, GC)
P8	RPQ0202	PAD	(GN)
P9	RPF0046	PROTECTION BAG (F. B.)	
		ACCESSORIES	
A1	RFKSLXP505EG	INST. MANUAL ASS'Y	(EG)
A1	RQT1400-B	INST. MANUAL	(EB)
A1	RQT1398-G	INST. MANUAL	(GC)
A1	RQT1400-B	INST. MANUAL	(GN)
A2	RQA0013	WARRANTY CARD	(EG, EB)
A2	RQX7433ZA	WARRANTY CARD	(GN)
A3	RQCB0169	SERVICENTER LIST	
A4	EURSBFA06NT	REMOTE CONTROL TRANSMITTER	
A5	RCDNTR1008A	REMOTE CONT. RECEIVER UNIT	
A6	RFEA401E-1S	AC ADAPTOR	(EG) ⚠
A6	RFEA401B-W	AC ADAPTOR	(EB) ⚠
A6	RFEA402Z-W	AC ADAPTOR	(GC) ⚠
A6	RFEA401A-W	AC ADAPTOR	(GN) ⚠
A7	RFEV102A-K2S	STEREO EARPHONES	
A8	SH-CDB8-3	RECHARGEABLE BATTERIES	(EG, EB)
A8	SH-CDB8-2	RECHARGEABLE BATTERIES	(GC, GN)
A9	SJPD5-2K	STEREO CONNECTION CABLE	
A10	RJP120ZDS-K	AC PLUG ADAPTOR	(GC) ⚠
A11	RKB205ZA-0	EAR PAD	
		<PRINTED CIRCUIT BOARDS ASS'Y>	
PCB1	REP1266B-M	MAIN P. C. B.	(NLA)
		INTERFACE P. C. B.	
		JACK P. C. B.	

Note: Printed circuit board assembly with mark (NLA) is no longer available after discontinuation of the product.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC11	AN8083SE2	IC, DC-DC CONV. CONTROL	
IC101	AN8373SE2	IC, SERVO AMP	
IC102	AN8374SE2	IC, SERVO PROCESSOR	
IC103, 104	AN8387SE2	IC, COIL/MOTOR DRIVE	
IC201	UPD75308G699	IC, SYSTEM CONTROL&LCD DRIVE	
IC202	MN6625A	IC, DIGITAL SIGNAL PROCESSOR	
IC203	LC3517BMLE2	IC, 16K RAM	
IC204, 205	TC7SU04FT85R	IC, INVERTER	
IC301	SM5840AS-ET	IC, DIGITAL FILTER	
IC302	UPD6376GSE1	IC, D/A CONVERTER	
IC303	NJM2100MAT1	IC, L. P. F.	
IC304, 305	NJM3415M	IC, HEADPHONES AMP	
		TRANSISTOR(S)	
Q11	2SD1302STTA	TRANSISTOR	
Q12	2SD1328STTW	TRANSISTOR	
Q20	2SD1302STTA	TRANSISTOR	
Q21	2SB1218QRSTW	TRANSISTOR	
Q22	2SB709QRSTW	TRANSISTOR	
Q26	2SD1819QRSTW	TRANSISTOR	
Q27	DTC114TKT147	TRANSISTOR	
Q29	DTC114TKT147	TRANSISTOR	
Q30	2SB709QRSTW	TRANSISTOR	
Q31	DTC144EKT97	TRANSISTOR	
Q32	2SD601QRSTW	TRANSISTOR	
Q33	2SD2005PQRTA	TRANSISTOR	
Q34	DTB123YKT147	TRANSISTOR	
Q35, 36	2SD601QRSTW	TRANSISTOR	
Q109	2SB709QRSTW	TRANSISTOR	
Q201	2SD601QRSTW	TRANSISTOR	
Q202	DTA143TKT97	TRANSISTOR	
Q203	DTC143TKT97	TRANSISTOR	
Q301-304	2SD1328RSTTW	TRANSISTOR	
Q305, 306	DTC114TKT147	TRANSISTOR	
Q308	2SD601QRSTW	TRANSISTOR	
Q312	2SD1819QRSTW	TRANSISTOR	
Q315, 316	2SD1328RSTTW	TRANSISTOR	
Q317	DTC114TKT147	TRANSISTOR	
Q318	DTA114YKT147	TRANSISTOR	
Q319	IMD6T109	TRANSISTOR	
Q320	FMG4T148	TRANSISTOR	
Q321	DTC114TKT147	TRANSISTOR	
Q322, 323	DTA114TUT107	TRANSISTOR	
		DIODE(S)	
D10	MA701TX	DIODE	
D11-13	MA151WK	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D14	MA153-TW	DIODE	
D16	MA153-TW	DIODE	
D17	MA704ATW	DIODE	
D110	MA143TW	DIODE	
D205	MA151WK	DIODE	
D206	MA8100MTW	DIODE	
E201-209	LN1361CUY-TR	LED	
		IC PROTECTOR(S)	
ICP11	SRUN50T	IC PROTECTOR	
		VARIABLE RESISTOR(S)	
VR11	EVNDXAA00B33	V. R, POWER SUPPLY VOLT. ADJ.	
VR101	EVM1YSX30B14	V. R, BEST EYE ADJ.	
VR102	EVM1YSX30B24	V. R, TRACKING BALANCE ADJ.	
VR103	EVNDXAA00B14	V. R, FOCUS OFFSET ADJ.	
VR104	EVNDXAA00B14	V. R, FOCUS GAIN ADJ.	
VR105	EVNDXAA00B14	V. R, TRACKING GAIN ADJ.	
VR106	EVNDXAA00B14	V. R, TRACKING OFFSET ADJ.	
VR301	EVUBPAT50C54	V. R, VOLUME	
		COIL(S)	
L11	RLZ0007-0	COIL	
L13	RLQB330KT-K	COIL	
L101	SLQDNL330KT	COIL	
		OSCILLATOR(S)	
X201	RSXZ16M9M01T	OSCILLATOR	
		LCD	
LCD201	EDD052CA8AFP	LCD	
		JACK(S) & CONNECTOR(S)	
CN11	RJJ4303-1	DC IN JACK	
CN12, 13	RJC30002-3	BATTERY TERMINAL	
CN14	RJH5102-1	RECHARGEABLE BATT. TERMINAL	
CN103	RJS1A6116	CONNECTOR(16P)	
CN104-106	EMCS0255B	CONNECTOR(2P)	
CN201	RJJD3S5ZA-C	REMOTE SENSOR JACK	
CN301	RJJD3S5ZA-C	LINE OUT JACK	
CN302	RJJD5S3MZA-C	HEADPHONES JACK	
CN303	RJT059W006	CONNECTOR(6P)	
CN304, 305	RJU059W006	CONNECTOR(6P)	
CN306	RJT059W006	CONNECTOR(6P)	
		SWITCH(ES)	

Ref.No.	Part No.	Part Name & Description	Remarks
S101	RSH1A91ZA-A	SW,LASER ON/OFF	
S102	SSHD5	SW,REST DETECTOR	
S201	EVQQTJ05R	SW,PLAY/PAUSE	
S202	EVQQTJ05R	SW,STOP/OPERATION OFF	
S203	EVQQTJ05R	SW,F.SKIP/SEARCH	
S204	EVQQTJ05R	SW,B.SKIP/SEARCH	

Ref.No.	Part No.	Part Name & Description	Remarks
S205	EVQQTJ05R	SW,REPEAT	
S206	EVQQTJ05R	SW,MEMORY/RECALL	
S207	ESD11H230	SW,PLAY MODE SELECTOR	
S208	ESD11H220	SW,HOLD	
S209	ESD11H220	SW,LIVE	
S301	ESD11H230	SW,ASC/S-XBS SELECTOR	

RESISTORS & CAPACITORS

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise,P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms,unless specified otherwise,1K=1,000(OHM) , 1M=1,000k(OHM)

Ref.No.	Part No.	Values & Remarks
		RESISTOR(S)
R11	ERJ3GEYJ223V	1/16W 22K
R12	ERJ3GEYJ272V	1/16W 2.7K
R13	ERJ3GEYJ222V	1/16W 2.2K
R14	ERJ6GEYJ100	1/10W 10
R15	ERJ6GEYJ333V	1/10W 33K
R16	ERJ3GEYJ333V	1/16W 33K
R18	ERJ6GEYJ101V	1/10W 100
R20	ERJ6GEYJ224V	1/10W 220K
R28	ERJ6GEYJ220	1/10W 22
R29	ERJ3GEYJ220V	1/16W 22
R36	ERJ3GEYJ221V	1/16W 220
R38	ERJ3GEYJ274V	1/16W 270K
R42	ERJ3GEYJ224V	1/16W 220K
R43	ERJ3GEYJ223V	1/16W 22K
R44	ERJ6GEYJ223V	1/10W 22K
R45	ERJ6GEYJ273V	1/10W 27K
R46	ERJ6GEYJ153V	1/10W 15K
R47	ERJ3GEYJ104V	1/16W 100K
R48	ERJ3GEYJ154V	1/16W 150K
R49	ERJ12YJ1R2H	1/2W 1.2
R50	ERJ3GEYJ391V	1/16W 390
R51,52	ERJ3GEYJ272V	1/16W 2.7K
R53	ERJ3GEYJ471V	1/16W 470
R54	ERJ6GEYJ120V	1/10W 12
R55	ERJ3GEYJ391V	1/16W 390

Ref.No.	Part No.	Values & Remarks
R56	ERJ3GEYJ333V	1/16W 33K
R57	ERJ3GEYJ473V	1/16W 47K
R101-104	ERJ3GEYJ183V	1/16W 18K
R107,108	ERJ3GEYJ102V	1/16W 1K
R109	ERJ3GEYJ153V	1/16W 15K
R111	ERJ6GEYJ103V	1/10W 10K
R112	ERJ3GEYJ393V	1/16W 39K
R113	ERJ6GEYJ823	1/10W 82K
R114	ERJ3GEYJ223V	1/16W 22K
R115	ERJ6GEYJ564V	1/10W 560K
R116	ERJ3GEYJ333V	1/16W 33K
R117	ERJ3GEYJ184V	1/16W 180K
R118	ERJ3GEYJ123V	1/16W 12K
R119	ERJ3GEYJ154V	1/16W 150K
R120	ERJ3GEYJ683V	1/16W 68K
R122	ERJ6GEYJ154V	1/10W 150K
R123	ERJ3GEYJ182V	1/16W 1.8K
R124	ERJ3GEYJ393V	1/16W 39K
R125	ERJ3GEYJ683V	1/16W 68K
R130	ERJ3GEYJ100V	1/16W 10
R135	ERJ6GEYJ221V	1/10W 220
R136	ERJ6GEYJ220	1/10W 22
R137,138	ERJ6GEYJ102V	1/10W 1K
R139	ERJ6GEYJ223V	1/10W 22K
R141	ERJ3GEYJ223V	1/16W 22K
R143	ERJ6GEYJ561V	1/10W 560
R144	ERJ6GEYJ821V	1/10W 820
R147	ERJ3GEYJ333V	1/16W 33K

Ref.No.	Part No.	Values & Remarks
R200	ERJ3GEYJ472V	1/16W 4.7K
R204,205	ERJ3GEYJ223V	1/16W 22K
R207	ERJ6GEYJ223V	1/10W 22K
R208	ERJ3GEYJ392V	1/16W 3.9K
R209	ERJ3GEYJ473V	1/16W 47K
R210	ERJ3GEYJ104V	1/16W 100K
R211	ERJ6GEYJ562V	1/10W 5.6K
R212-215	ERJ6GEYJ102V	1/10W 1K
R216	ERJ6GEYJ561V	1/10W 560
R219	ERJ6GEYJ473V	1/10W 47K
R221	ERJ3GEYJ821V	1/16W 820
R222	ERJ3GEYJ103V	1/16W 10K
R226-231	ERJ3GEYJ271V	1/16W 270
R232	ERJ3GEYJ102V	1/16W 1K
R233	ERJ8GEYJ470V	1/8W 47
R234	ERJ3GEYJ473V	1/16W 47K
R235	ERJ3GEYJ122V	1/16W 1.2K
R236,237	ERJ3GEYJ681V	1/16W 680
R300	ERJ3GEYJ103V	1/16W 10K
R301,302	ERJ3GEYJ183V	1/16W 18K
R303,304	ERJ3GEYJ333V	1/16W 33K
R309	ERJ3GEYJ303V	1/16W 30K
R310	ERJ6GEYJ183V	1/10W 18K
R315,316	ERJ6GEYJ122V	1/10W 1.2K
R317,318	ERJ6GEYJ473V	1/10W 47K
R319,320	ERJ3GEYJ821V	1/16W 820
R327,328	ERJ3GEYJ123V	1/16W 12K
R329,330	ERJ3GEYJ154V	1/16W 150K

Ref. No.	Part No.	Values & Remarks
R331, 332	ERJ3GEYJ120V	1/16W 12
R333, 334	ERJ3GEYJ104V	1/16W 100K
R335, 336	ERJ3GEYJ151V	1/16W 150
R343, 344	ERJ3GEYJ473V	1/16W 47K
R345, 346	ERJ3GEYJ102V	1/16W 1K
R348	ERJ3GEYJ474V	1/16W 470K
R349-351	ERJ3GEYJ471V	1/16W 470
R353	ERJ3GEYJ152V	1/16W 1.5K
R354	ERJ6GEYJ152V	1/10W 1.5K
R355, 356	ERJ3GEYJ100V	1/16W 10
R357, 358	ERJ3GEYJ333V	1/16W 33K
R359, 360	ERJ3GEYJ105V	1/16W 1M
R361, 362	ERJ3GEYJ223V	1/16W 22K
R363, 364	ERJ3GEYJ103V	1/16W 10K
R365, 366	ERJ6GEYJ122V	1/10W 1.2K
R369	ERJ3GEYJ681V	1/16W 680
R370, 371	ERJ3GEYJ222V	1/16W 2.2K
R372, 373	ERJ3GEYJ105V	1/16W 1M
R374, 375	ERJ3GEYJ682V	1/16W 6.8K
R376, 377	ERJ3GEYJ392V	1/16W 3.9K
R378	ERJ6GEYJ102V	1/10W 1K
R379	ERJ3GEYJ102V	1/16W 1K
R380	ERJ6GEYJ104V	1/10W 100K
R381	ERJ3GEYJ104V	1/16W 100K
R382, 383	ERJ3GEYJ563V	1/16W 56K
R384, 385	ERJ3GEYJ333V	1/16W 33K
R386, 387	ERJ3GEYJ103V	1/16W 10K
R388, 389	ERJ3GEYJ223V	1/16W 22K
R390, 391	ERJ3GEYJ273V	1/16W 27K
R392, 393	ERJ3GEYJ183V	1/16W 18K
R394, 395	ERJ3GEYJ123V	1/16W 12K
R396	ERJ3GEYJ473V	1/16W 47K
R397	ERJ3GEYJ103V	1/16W 10K
		CAPACITOR(S)
C11, 12	ECEA1AKA470I	10V 47U
C13	SRX01C470GNJ	16V 47U
C14	ECEA0JKA101I	6.3V 100U
C15	ECUV1C105ZFM	16V 1U
C16	ECUV1E103KBN	25V 0.01U
C17	ECEA1EKS4R7I	25V 4.7U
C18	ECUV1H102KBV	50V 1000P
C19	ECUV1E103KBN	25V 0.01U
C20	ECEA1EKS4R7I	25V 4.7U
C21	ECUV1C104KBM	16V 0.1U
C22	ECUV1H331KBN	50V 330P
C23	ECUV1H470KCN	50V 47P
C101	ECUV1C823KBM	16V 0.082U
C102	ECEA1HKN010I	50V 1U
C103	ECUV1C333KBN	16V 0.033U
C104	ECEA1HKN010I	50V 1U
C105	ECUV1C333KBN	16V 0.033U
C106	ECEA1HKS010	50V 1U
C107	ECUV1H152KBN	50V 1500P
C108	ECUV1H681KBV	50V 680P
C110	ECUV1C104ZFN	16V 0.1U
C112	ECUV1C104KBM	16V 0.1U
C113	ECUV1C223KBN	16V 0.022U
C114	ECUV1C563KBM	16V 0.056U
C115	ECEA1AKA220I	10V 22U
C116	ECUV1C823KBM	16V 0.082U
C117, 118	ECUV1C224KBM	16V 0.22U
C119	ECEA1HKN2R2I	50V 2.2U
C120	ECUV1C223KBN	16V 0.022U
C124	ECEA1HKAR47I	50V 0.47U
C136	ECEA0JKA220	6.3V 22U
C141	ECEA0JKA470I	6.3V 47U
C142	ECEA1CKA100I	16V 10U
C149	ECUV1H222KBN	50V 2200P
C150	ECUV1C104ZFN	16V 0.1U
C201	ECEA1HKA010I	50V 1U
C202	ECUV1C104ZFN	16V 0.1U
C203	ECUV1H270KCN	50V 27P
C204	ECUV1H390KCN	50V 39P
C207	ECUV1H102KBN	50V 1000P
C213	RCST0JY475LE	6.3V 4.7U
C301	ECEA0JPK101I	6.3V 100U
C304	ECEA0JPK101I	6.3V 100U
C311, 312	ECUV1H222KBN	50V 2200P
C313	ECEA1AKA220I	10V 22U
C314	ECEA1AKA470I	10V 47U
C321, 322	ECEA1APK330I	10V 33U
C329, 330	ECEA0GPK221I	4V 220U
C333, 334	ECUV1C104ZFN	16V 0.1U
C335, 336	ECUV1H681KBN	50V 680P
C337, 338	ECUV1C123MBV	16V 0.012U
C340	ECEA0JPK101I	6.3V 100U
C343	ECUV1C104ZFN	16V 0.1U
C346, 347	ECEA1CPK100I	16V 10U
C349, 350	ECUV1H102KBV	50V 1000P
C351	ECUV1C104ZFN	16V 0.1U
C352, 353	ECUV1H332KBV	50V 3300P
C354, 355	ECUV1C333KBN	16V 0.033U
C356, 357	ECEA1HKSR22I	50V 0.22U
C358, 359	ECUV1C104KBN	16V 0.1U
C362, 363	ECUV1C105ZFM	16V 1U
C364	ECEA0JKA220	6.3V 22U

■PACKING